

University News

Gulbarga Varsity Convocation



hivarama Karanth, an eminent Kannada litterateur, delivering the Convocation Address at the Gulbarga University, Gulbarga. Seated on his left are Shri A.N. Banerji, Chancellor and Dr. H. M. Nayak, Vice-Chancellor of the University.

CLASSIFIED ADVERTISEMENT

INDIRA GANDHI NATIONAL OPEN UNIVERSITY, NEW DELHI RECRUITMENT TO THE POST OF LECTURERS

Applications in the prescribed form are invited for the posts of Lecturers in each of the following subjects, except in Management Studies, where the number of posts is two :

English; Hindi; Economics; History; Sociology; Political Science; Public Administration; Mathematics; Commerce; Physics; Chemistry; Human Biology; Botany; Zoology; Rural Development; and Management Studies.

These posts carry a scale of pay of Rs. 700-40-1100-50-1600 and DA, CCA, HRA, etc. as admissible under the rules in force in the University from time to time. Benefits of pension-cum-provident fund-cum-gratuity or contributory provident fund-cum-gratuity, leave travel concession etc. will be admissible as per University rules.

Age of retirement : 60 years.

Essential Qualifications : (other than Management Studies) are :

- A Doctorate degree or research work of an equally high standard; and
- Good academic record with at least second class ('C' in the seven point scale) Master's Degree in a relevant subject from an Indian University or an equivalent degree from a foreign university. Having regard to the need for developing interdisciplinary programmes, the degree in (a) and (b) above may be in relevant subjects. Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax the requirement of at least second class in Master's degree examination in terms of level achieved at the said examination as prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing good academic record (weightage being given to equivalent degree or research work of quality), may be appointed if he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research of high standard within eight years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

Desirable Qualifications

Experience in imparting education through any means of communication and innovations in teaching methods and/or production of teaching materials.

Explanation

For determining "good academic record", the following criteria shall be adopted :

- A candidate holding a Ph.D. Degree should possess at least a second class Master's degree;
- OR
- A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree;
- OR
- A candidate not possessing Ph.D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

Management Studies

- Lecturer in Behavioural Sciences;
- Lecturer in Operations Management.

Essential Qualifications

A Master's degree in Business Administration or M.Tech. in Engineering with first class. Such candidates would have to acquire a Doctorate degree within a period of eight years. Provided that candidates not possessing a Master's degree in Business Administration or M.Tech. in Engineering, but having Master's degree in allied subjects pertinent to the specialisation, and possessing qualifications as for other subjects indicated above could apply.

Job Requirements

The IGNOU was established by an Act of Parliament to encourage open university and distance education systems in the educational pattern of the country.

The academics of the University will thus have the responsibility as members of the Course Teams, to create, design and produce the course material and also be responsible for student evaluation.

The prescribed application forms can be had from the Officer on Special Duty, Indira Gandhi National Open University, YMCA Cultural Centre, Jai Singh Road, New Delhi-110001 either personally or by sending a self-addressed envelope (size 13 cms x 28 cms) with postage stamps worth Rs. 3.85.

Applications duly completed along with attested copies of degrees, other certificates, mark-sheets, published research articles etc. should reach the above address by **7th May, 1986.**

The candidates will have to produce the original documents relating to their age, qualifications, experience, etc. at the time of interview.

Note

(1) It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases, in respect of all the posts on the recommendations of the Selection Committee; (2) Canvassing in any form by or on behalf of the candidates will disqualify; (3) Candidates from outside Delhi, when called for interview will be paid to and fro second class rail fare; (4) The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant; and (5) 15% and 7½% vacancies are reserved for Scheduled Castes and Scheduled Tribes candidates respectively, if available; otherwise they will be open to general candidates.

No. 2 Admn./86.



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IN THIS ISSUE

| | |
|---|----|
| Standards in Higher Education | |
| Role of Distance Education | 5 |
| Convocation | |
| Gulbarga University, Gulbarga | 12 |
| News from Universities | |
| Challenges for Management | 20 |
| More 'special assistance' for Cochin University | 20 |
| Punjab History conference | 20 |
| Agriculture | |
| New cotton variety | 21 |
| Audio cassette on cotton | 21 |
| State level leadership-cum-rural development camp | 21 |
| AIU News | |
| AIU workshop on computer applications | 22 |
| AIU Standing Committee to meet at Ooty | 22 |
| News from UGC | |
| Assistance for Mysore University's Geology Department | 22 |
| Assistance for Bangalore University's Maths Deptt. | 23 |
| Research in Progress | 24 |
| Theses of the Month | 25 |
| Classified Advertisements | 28 |

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Editor :

M.S. RAMAMURTHY

Standards in Higher Education

J. N. Kapur*

The Problem and the Evidence

There is no doubt that standards of education and research in many universities in India have declined steeply: in fact these were never very high in most of these universities. There has been no large-scale direct objective assessment of these standards over the years, but the indirect circumstantial evidence leads inevitably to this unhappy conclusion:

(i) Mass-copying is quite prevalent in many school systems and in some universities. Though the evil has declined to some extent in recent years, it is still playing a significant role in eroding educational standards. Once a student gets the feeling that he can easily get through an examination by using unfair means, his motivation for hard work is considerably reduced. There is enough 'black money' in the educational system in the form of illegally acquired degrees. There has been some effort to assess the amount of black money in the economic system, but there has been no corresponding effort to assess the number of black degrees in the educational system.

(ii) There are some universities where there is an open choice in each question paper and a student is asked to attempt any five questions out of ten or twelve. The result is that many students prepare only 50 to 60 per cent of the course and still manage to get good marks. In such universities, there is a steep decline in attendance in classes after half the course has been covered.

(iii) The number of effective teaching days in a year in many colleges is less than one hundred. In one very prestigious college, where I was invited to give a key-note address in a seminar on "Excellence in Teaching", I was told by the teachers that they cannot be excellent teachers because due to strikes by students, college karamcharis, university karamcharis, teachers, delays in declaration of results, cricket matches and scheduled holidays, they do not get an opportunity to teach more than thirty days in a year. Though the University Grants Commission (UGC) has suggested a minimum of 180 teaching days in a year with a target of 210 teaching days, this suggestion has not been implemented in many universities. The unfortunate part is that we do not know even the precise extent of this evil.

(iv) Even when the colleges are open, the classes scheduled in the timetable may not be taken. In one state, where many of the colleges are government colleges, the government recently announced the formation of 'flying squads' to catch teachers who were cutting their classes, since it had reasons to believe that the evil had become very wide-spread.

(v) In one prestigious college of Delhi University, a survey conducted about ten years ago showed that many teachers teach less than one hundred and fifty periods per year and that the average performance of its students in the degree examination was far lower than their own earlier performance in the higher secondary examination. The pity was that nobody was even concerned about it.

(vi) Many of us who have been interviewing candidates for various college, university and government jobs have noticed considerable deterioration in performance of candidates. It is true that we can find one or two

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to fill a post when fifty persons apply for it. In some cases, however the decision reads: "One hundred persons applied, twenty were called for interview, but none was found suitable".

(vii) The UGC, CSIR and IIT's have recently started conducting examinations for awarding scholarships for research. An analysis of these examination results should be able to give us a fair idea of the standards in various universities.

(viii) An average student should put in 50 hours per week of serious academic work for 40 weeks in a year. Thus the academic work put in per year should be 2000 ± 200 hours per student. However the average in India is much less. Again no reliable figures are available, yet it is known that a large number of students work seriously for two months in a year and that too with the help of made-easy notes only. They take things easy for the rest of the year. There are extreme cases of students who have managed to get good marks by putting in a total of 100 hours a year. Our system is not sufficiently challenging. The standards in a university are intimately related with the amount of work put in by its students and teachers.

(ix) Many students depend on class-room notes only or at the most on one help-book per paper. There are some who use one standard text-book per paper. The number of students who study more than one book per paper or who consult the library for books and journals is relatively small.

(x) The deterioration in standards of Ph.D. theses in many universities has been deplorable. Due to the requirement of a Ph.D. degree for a lecturer's job and due to the need for producing Ph.D.'s to get promotion as readers and professors, there has been an exponential rise in the number of Ph.D.'s in many universities and many malpractices have grown unchecked. If a supervisor has three or four obliging friends in his subject in other universities and has some influence with his university administration, he can produce any number of Ph.D.'s he likes.

(xi) Only a person who is himself actively engaged in research in an area can critically examine a Ph.D. thesis since he knows of the current literature in the field. Because of the high specialisation in modern day knowledge, a person working in a different area may be able to decide whether the results of a thesis are correct, but he cannot easily decide whether these are really original unless he is familiar with the current literature. Many of our top professors get busy with

administration and committee work and with their own specialised research. They have no time to read the current literatures in even allied fields. If a Ph.D. candidate modifies only slightly the results obtained by others, they cannot detect it and the candidates get the benefit of doubt.

(xii) Due to the 'publish or perish' pressure many poor quality papers are also being published in poor quality journals.

Some Possible Reasons

(i) There has been no explicit emphasis on 'Quality' in our educational system. There has been a quantitative explosion in terms of number of students, colleges, departments and universities. Higher education has become a status symbol. Every MP wants a university in his constituency and every village pradhan wants a degree college in his village; neither is worried about the quality of education in the university or the college. Once a chief minister promised a college to a small town and he asked me as V C to give it affiliation. I told him 'I cannot give affiliation since the college has no buildings, no library and no equipment'. He simply said 'You worry about standards, I worry only about pleasing people in my constituency. If you do not agree to affiliate it, I will get it affiliated to another university where the V.C. is not so fussy about standards'.

(ii) All politicians vehemently criticize the educational system and this leads to low morale of students and teachers. Their criticism has been mainly that it is not relevant to the needs of the country and the educated persons remain unemployed. The words 'Quality', 'Excellence', 'High standards' have been conspicuous by their absence in their speeches. If they ever mention standards, it is to say that we should not bother about international standards.

(iii) The educational system has been exploited by politicians in many ways. Vice-Chancellors have been appointed on blatantly caste, communal, political patronage and personal obligation considerations. Persons who are likely to easily yield to political pressures of all types in appointments, admissions and affiliations are preferred to persons who are likely to stand for fairness and high standards. Students unions are financed and supported by different political parties. Professional student leaders are used to create trouble for inconvenient persons in the university system and even outside. Those students and teachers who get political patronage for various reasons are allowed to

break discipline with impunity leading to something near to chaos in the university system. Rival groups of politicians try to control college managements and university bodies so as to use them as centres of political influence. All issues in the university begin to be discussed from the point of view of power groups. The interests of students and teachers are seldom taken into consideration.

(iv) Teachers have not been averse to exploiting the educational system. In some colleges, teachers are engaged in group-tuitions on a large scale. In one college there were sixty percent students taking tuitions from their own college teachers and almost no classes were going on in the college. There is also a large market for made-easy books. Teachers' organisations are always ready to fight for teachers' salaries and criticize every one else, but never speak anything against teachers who do not take classes or who misuse their position. In fact when college or university administration takes action against a teacher, the organisation invariably support the teacher. They seldom accept responsibility for educational standards.

(v) The students are also not averse to exploiting the educational system. Many of them do not mind passing examination without putting in the necessary hard work. Their goal is degree, and not scholarship, learning or preparation for life. Their natural idealism has been eroded by the prevailing corruption and nepotism. They are not convinced that merit and merit alone matters in all selections. High standards of education and good teaching seldom find a place in student's long charters of demands. One sure way of raising educational standards is to remove corruption from our society.

(vi) Instead of insisting on hard honest work by their wards, the parents are not averse to using all their influence and money in getting unfair admissions, unfair marks and unfair selections for their children.

(vii) The University Grants Commission (UGC) was given the responsibility for maintenance and co-ordination of standards. It has taken many steps for improvement of standards, but it has no powers to act against erring institutions. New universities with small resources are started by state governments while old universities continue to suffer from lack of funds. The standards of both the old and the new universities fall and the UGC looks helplessly on the situation. It does not give any grants to new universities, but that does not bother the politicians in the least who are not concerned about the quality of education in the univer-

sities. They are only interested in having more centres for distribution of favours. After a few years, the UGC even begins to give grants to these new universities in the interest of the students. The net result is that the number of such sick universities continues to grow.

(viii) In advanced countries, even a well-established university cannot start a new programme without getting accreditation from a central agency independent of local influences. Here a whole university can be started at the whim of a minister to satisfy the political aspirations of the people without providing for the necessary funds or ensuring that the right type of persons are available for manning the university. The tragedy is that the same minister, after starting such a sick new university goes out and criticizes the educational system vehemently.

(ix) Every body seems to have a vested interest in exploiting the educational system and at the same time condemning it so that the exploitation is not even noticed. If a system is already bad, nothing is lost by making it worse if in the process you derive some benefit yourself.

(x) The government has reserved seats for scheduled caste students in medical and engineering colleges and quite often these students get admissions with considerably lower marks than others. As such each such college gets two distinct groups, one extremely bright and the other at the most average. Standards naturally decline under these conditions. The better course would be for the government to start special schools for weaker sections and in other ways to provide special facilities of quality education to enable the scheduled caste students to compete for seats in medical and engineering colleges on their merit. This can be easily achieved if there is a will to do so.

Some Suggestions

(i) The 'New Educational Policy' should lay explicit stress on Quality and Excellence. One of the main criteria of its success should be the rise in the standards of education in each college and in each university.

(ii) Every governor (chancellor), chief minister, education minister should learn to take pride in the standard of education in the universities in his state and should work ruthlessly for raising the quality of education. No considerations of political advantage or personal obligation or caste should be allowed to come in the way and they should insist on judging every proposal from the point whether it will help in

raising standards. They should resist the temptation to open new colleges and universities and have the courage to tell people that under no conditions, they will compromise with standards. They should also prevent their followers from interfering in academic affairs or exploiting educational institutions for their personal gains.

(iii) Every vice-chancellor, principal, professor and teacher should begin to take pride in the standards of his university or department and should be ready to give a fight to those elements trying to lower standards. Every institution should build up a 'reputation' for excellence which it should guard zealously.

(iv) Every effort should be made to give encouragement to outstanding work by any department, college or university and well-defined criteria should be developed for this purpose.

(v) Accreditation organisations should be formed under the UGC. These should have powers to give recognition and withdraw recognition from colleges, universities and departments on the basis of critical evaluation of their work. If an institution gets grade C it should not get UGC assistance, if it gets D grade, it should not get state government grant and if it gets grade E, it should not be allowed to award degrees or diplomas. Standards, expected of each type of institution for getting a specific grade should be clearly spelled out.

(vi) Every institution should be helped in developing a vested interest in high standards, only then it will be able to fight external pressures and internal centres of resistance.

(vii) Teachers have to be helped to remain upto date in the knowledge of the subject they teach and also in teaching methods. Large scale inservice-training programming, making use of T.V., radio, correspondence lessons, workshops, conferences have to be employed. Unless the teachers are continuously learning, they cannot remain exciting teachers.

(viii) All Ph.D. vivas should be open. Even theses reports and tapes of Ph.D. viva voce questions and answers should be available to some central agencies. Quite often the thesis reports just summarise the thesis and recommend the award of the degrees and one can see that the examiner has not read the thesis critically. Again quite often the candidates are either asked trivial questions at the viva voce examinations or are not able to answer the questions, yet the degree is awarded. Pre-Ph.D. courses and comprehension examinations should also be introduced.

(ix) The UGC, CSIR and IIT examinations will give some idea of the relative standards of various universities at M.A./M.Sc. level. The results of these examinations should be carefully analysed and published. There should also be a large number of scholarships of smaller value available for M.A./M.Sc. studies. Examinations for these scholarships will also enable us to assess and coordinate standards.

(x) We may also develop criteria for faculty evaluation and some sort of grading of departments according to the type of faculty they have. There should be a healthy competition between departments and universities for having the best faculty members—best so that they will give encouragement to every faculty member to grow to his/her full stature.

Concluding Remarks

Standards cannot be maintained or raised by just legislation or wishing for them. These require hard work on the part of every one. The basic requirement is commitment on the part of every one that Indian students will have only the best and nothing will be allowed to come in its way. It has also to be remembered that the pursuit of excellence has to be single-minded—it admits of no exceptions and of no compromises. □

STRUCTURAL ENGINEERING RESEARCH CENTRE

**CSIR Campus, TITI-Taramani P.O.,
Madras 600 113**

CORRIGENDUM

In the Advertisement No. SE-1/86 published in the Newspapers, please read the Qualifications prescribed for the posts of Scientist B as : "First Class B.E. in Civil Engineering or M.Tech./M.E. in Structural Engineering. Candidates having 3 to 4 years experience in analysis, design and construction of complex structures will be preferred".

The other terms and conditions as earlier notified remaining unchanged, the last date for obtaining the application forms from the undersigned has been extended from 31st March, 1986, to 10th April, 1986, and the last date for submitting the completed applications in the prescribed form has been extended from 15th April, 1986, to 25th April, 1986.

Administrative Officer

Role of Distance Education

Ruddar Datt*

Over two decades ago in 1962 the idea of starting correspondence education in India was conceived of as a pilot project in the University of Delhi. The success achieved by this project encouraged several other universities to take up instruction through the distance education technique. In 1984, 28 universities have taken up correspondence education and it has been estimated that nearly 3,00,000 students are getting instruction at various levels. This implies that nearly 10 per cent of the total enrolment is accounted for by the distance learners at the higher education level in India. This is by no means a small achievement. The government in its educational policy had decided that our target at the level of higher education should be to impart instruction to 20 per cent students through the technique of correspondence education.

A review of the growth of distance education in India reveals that during the sixties, only four Institutes of correspondence education were established, viz., Delhi (1962), Punjab (Patiala) (1968), Meerut (1969), Mysore (1969). The sixties was, therefore, a period during which the idea of distance education germinated in the Indian soil. During the decade (1970-80), 19 universities started institutes/directorates of correspondence education and it can be said that a major thrust to distance education was provided. The institutes/directorates established during this period also took up post-graduate courses and some diploma/certificate courses. For the first time in the history of distance education, the Government of Andhra Pradesh took the momentous decision to establish Adnhra Pradesh Open University in 1982. Thus, an autonomous institution of the level of a university was set up to develop distance education. Soon after its establishment, Tamil Nadu, Maharashtra and Kerala also started thinking in terms of an open university for the State. The establishment of the Indira Gandhi National Open University in September 1985 has brought greater prestige to this alternative technique of education. This is a welcome development because with the creation of universities totally devoted to distance education, the impediments posed by the traditional university structure in the way of promoting distance education will be removed.

**Principal, School of Correspondence Courses, University of Delhi, Delhi.*

A review of correspondence education reveals that against 40,753 students receiving education through this technique in 1971-72, by 1975-76, total enrolment went up to 59,445 indicating a growth rate of 9.7 per cent per annum. But during 1975-76 to 1982-83, enrolment went up from 59,445 to 1,59,712 giving a growth rate of 15.2 per cent per annum.

It may be noted that the annual rate of growth of enrolment in correspondence courses during the last 12 years has been much higher than that in the universities. For the period, 1975-76 to 1982-83, the annual rate of growth of enrolment was 15.2 per cent in correspondence courses against a bare 3.7 per cent in the universities but as between different sub sectors, the enrolment grew at postgraduate level by 23.8 per cent as against 5.5 per cent in university departments and colleges. At the under-graduate level, the growth rate of enrolment in correspondence courses, though higher than in regular colleges and universities, was much lower than the growth rate at the post-graduate level. In other words, greater expansion of distance education has taken place at the post-graduate level during 1975-76 to 1982-83 than at the under-graduate level. However, there has been very little growth of diploma/certificate courses through distance education.

The history of growth of distance education in India reveals the following: During the decade 1962-72, the process of establishing under-graduate courses was witnessed. This may be described as the 'germination stage'. During the second decade, 1972-82, there has been a rapid expansion of correspondence courses both at the under-graduate and the post-graduate level, though the growth rate at the post-graduate level was much higher than at the undergraduate level. But most of these courses were a mere replication of the traditional B.A./B.Com., M.A./M.Com., B.Sc. courses of the universities. In this sense, this phase may be described as the 'extension phase' of the traditional university structure. The Diploma/Certificate courses of non-traditional nature have been started by some correspondence/distance education units, but their impact on the total enrolment has been very insignificant.

The scope of correspondence education has remained narrow. It has got to be widened. For this purpose, new courses have to be designed keeping in mind the needs of our society. Such courses should specifically

be linked to job requirements. They should be short-duration diploma courses so that the "continuing" part of distance education which has so far remained neglected, is developed.

Science and other technical subjects account for merely two per cent of enrolment and that too only in B.Sc. and M.Sc. courses. Job-oriented science courses have not been tried through the distance education technique.

Distance Education in the University Set-up: In Table II we present state-wise data indicating the share of correspondence students in total enrolment regionwise. Taking the southern region comprising Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, about 10 per cent of total enrolment in higher education is accounted for by distance education students in 1982-83. With Madras University also starting the Institute of Correspondence Education, the share of distance education is likely to increase still further in subsequent years. Tamil Nadu has the singular distinction of providing education through distance education technique to 22 per cent of total enrolment. During 1984-85, over 1.25 lakh students are reported to be receiving instruction through correspondence education in Tamil Nadu.

Similarly, in Andhra Pradesh with the establishment of Andhra Pradesh Open University, distance education has acquired a more respectable status. But for Kerala in which distance education is making very slow progress due to the large number of parallel colleges operating in the State, in all other states in the southern region, the share of distance education is higher than the national average of five per cent.

The second region which is of importance in the sphere of distance education is the northern region comprising Delhi, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Haryana and Uttar Pradesh. Among them, Himachal Pradesh tops the list with about 42 per cent of total enrolment being accounted for by distance education, share of Delhi is about 11 per cent and Jammu and Kashmir and Punjab is about 9 per cent each. Rajasthan is still below the national average and just accounts for 3.5 per cent. The most disappointing is Uttar Pradesh where despite the fact that though two institutes of correspondence courses, viz. Meerut and Allahabad, have been established, distance education has not got off the ground. Similar is the condition in Haryana.

In the central and western region, it is only Maharashtra which indicates a promising record in distance education. But while Gujarat has yet to appear on the distance education map, the share of a large State like Madhya Pradesh being less than one per cent only indicates the insignificant development of distance education in the State.

The vast eastern region consisting of the States of Bihar, Orissa, West Bengal, Assam, Meghalaya, Mizoram, Manipur seems to be an arid region so far as distance education is concerned. The total enrolment in the two small units set up at Patna (Bihar) and at Bhubaneswar (Orissa) is about 2,400. The region as a whole accounts for 0.4 per cent of the enrolment in higher education being catered for by the distance education technique. This only indicates the vast untapped potential in this region and there is need to invigorate this region towards the development of this alternative technique.

Non-viable units : For a distance education unit to be treated as viable, an enrolment of 5,000 may be considered reasonable. A normal gestation period of three years may be considered for examining whether a unit has become viable. Out of the 23 units for which data were available for 1982-83, as many as 11 had an enrolment below even 2,500 and thus they all fall in the category of non-viable units. Six distance education units were continuing with an enrolment of less than 1,000 despite the fact that some of them have been in existence for more than a decade. The distance education technique must reap the benefit of economies of scale and, therefore, an analysis of the factors responsible for stagnation in these non-viable units must be made. Just as the National

Table I : Growth of enrolment in universities and affiliated colleges in India

| Year | Under-graduate | Post-graduate (including research) | Diploma/ Certificate | Total |
|---------|---------------------|---------------------------------------|-------------------------|-----------------------|
| 1971-72 | 18,35,077 (88.9) | 1,95,338 (9.5) | 34,626 (1.6) | 20,65,041 (100.00) |
| 1975-76 | 21,46,919 (88.5) | 2,38,207 (9.8) | 40,983 (1.5) | 24,26,109 (100.0) |
| 1982-83 | 27,45,381 (87.5) | 3,45,265 (11.0) | 43,340 (1.5) | 31,36,986 (100.0) |

Compound Annual Growth Rate of Enrolment

| | | | | |
|---------|-----|-----|-----|-----|
| 1971-72 | | | | |
| to | | | | |
| 1975-76 | 4.0 | 5.1 | 4.2 | 4.0 |
| 1975-76 | 3.6 | 5.5 | 1.8 | 3.7 |
| to | | | | |
| 1982-83 | | | | |

Source : Computed from data provided in the University Grants Commission Reports.

Textile Corporation by a process of continuous nursing has been able to revive the sick units in the textile industry, similarly, the state should undertake an in-depth study of the factors responsible for the non-viability of these units and then take such measures which can revitalise them.

Financing and Role of the State : Although as a part of the national educational policy, distance education technique has been accepted as a viable alternative and economic technique for reaching the deprived sections, adequate support in the form of human and physical infrastructure has not been provided so far. The world over, it has been accepted, that the ratio of cost per student between university campus students and distance education is 3:1. The average cost per student of the university campus student in Delhi colleges is Rs. 3,187 and average fee paid by the student is Rs. 280. The element of subsidy per student is Rs. 2,907. Against it, in distance education cost per student works out to be Rs. 613 for the year 1983-84 and nearly 45 per cent of the cost is being paid by the student. The quantum of state support is too meagre for the development of a meaningful distance education system. Keeping the norm of one-third of the cost in regular university system, it would be appropriate if Rs. 1,000 per student is developed as the norm of expenditure in distance education out of which nearly 25 per cent should be realised in the form of fee income and state subsidy should be Rs. 750 per student. It is necessary that certain norms of expenditure are developed and revised periodically so that this alternative technique of education can develop a proper infrastructure and a delivery system.

The attitude of the University Grants Commission towards the promotion of distance education in the country also indicates that no conscious effort has been made to strengthen it. During the year 1984-85, although the UGC had a budget of Rs. 102 crores, the share of distance education in this budget was only 0.52 crore i.e., 0.5 per cent of the total non-plan expenditure of the UGC. In the plan-expenditure, out of the total budget of Rs. 66 crores, 0.03 crore was the share of distance education which is 0.05 per cent of the total plan-expenditure. This only indicates that whereas there is lot of talk about strengthening distance education in the country, in practice, the UGC has not demonstrated by its grant-allocation pattern that it really intends to strengthen it. On the plan side, distance education units are suffering considerably on account of lack of infrastructural facilities and the UGC can help in creating library-cum-study centres, audio visual units and the creation of adequate buildings for the directorate. Even at the regional centres, the UGC can help to provide study centres for the efficient functioning of

these units. But concrete steps in this direction have not been taken.

Besides this, to create physical infrastructure in the form of buildings, library-cum-study centres, studio for the production of software, etc. it is necessary that

Table II : Spatial distribution of enrolment in India (1982-83)

| | College and University Department | Correspondence Courses | Total 3=(1+2) | Share of Correspondence enrolment Total (per cent) 4=2/3x100 |
|-------------------------------------|-----------------------------------|------------------------|------------------|---|
| | (1) | (2) | (3) | |
| Southern Region | | | | |
| Andhra Pradesh | 2,43,877 | 17,244 | 2,61,121 | 6.7 |
| Karnataka | 2,36,494 | 14,736 | 2,51,230 | 5.9 |
| Kerala | 1,29,423 | 1,795 | 1,31,218 | 1.4 |
| Tamil Nadu | 2,34,785 | 67,042 | 3,01,827 | 22.2 |
| Sub-total | 8,44,579 | 100,817 | 9,45,396 | 9.5 |
| Northern Region | | | | |
| Delhi | 81,101 | 9,822 | 90,923 | 10.8 |
| Haryana | 61,990 | — | 61,990 | — |
| Himachal Pradesh | 16,432 | 11,701 | 28,133 | 41.6 |
| Jammu & Kashmir | 21,259 | 1,875 | 23,134 | 8.8 |
| Punjab | 1,15,386 | 11,016 | 1,26,402 | 8.7 |
| Rajasthan | 1,70,242 | 6,136 | 1,76,378 | 3.5 |
| Uttar Pradesh | 4,79,034 | 1,367 | 4,80,401 | 0.1 |
| Sub-total | 9,45,444 | 41,917 | 9,87,361 | 4.2 |
| Central & Western Region | | | | |
| Madhya Pradesh | 2,34,192 | 1,925 | 2,36,117 | 0.8 |
| Maharashtra | 3,69,626 | 12,690 | 3,82,316 | 3.3 |
| Gujarat | 2,06,180 | — | 2,06,180 | — |
| Sub-total | 8,09,998 | 14,615 | 2,24,613 | 1.8 |
| Eastern Region | | | | |
| Assam | 64,135 | — | 64,135 | — |
| Bihar | 1,92,151 | 1,567 | 1,93,718 | 0.8 |
| Manipur | 9,068 | — | 9,068 | — |
| Meghalaya | 9,416 | — | 9,416 | — |
| Orissa | 66,868 | 796 | 67,664 | 1.2 |
| West Bengal | 1,95,325 | — | 1,95,327 | — |
| Sub-total | 5,36,965 | 2,363 | 5,39,328 | 0.4 |
| Grand Total | 31,36,986 | 1,59,712 | 32,96,698 | 4.9 |

capital grants are made available. So far the UGC has not come forward with any proposal in this regard. It is on account of the scarcity of physical infrastructure that distance education institutes have to depend upon traditional universities to get their infrastructure for organising some activities like contact programmes. This is a very unsatisfactory arrangement because it does not provide distance education institutes with the much needed flexibility to make certain programmes to suit the convenience of its students.

So far, in government circles, the philosophy has been that correspondence courses/institutions have to be self-financing. Some state governments/universities treat them as milch cows to provide huge surplus for the development of traditional university structure. In this respect, it is essential to strictly enforce the principle that no part of the students' fees charged from the distance education students should be appropriated by the university and/or state government for any other purpose except for the development of distance education. Rather distance education system should be provided a threshold of essential services in the form of reading materials, contact classes, library facilities, audio and video cassettes, tutor guidance so that the system of distance education can become an effective learning system based on home study.

Table III: Cost of education per student in selected colleges of Delhi and School of Correspondence Courses.

| Institution | No. of students | Cost per student | In Rupees | |
|----------------------------------|-----------------|------------------|------------------------|---------------------|
| | | | Fee income per student | Subsidy per student |
| Deshbandhu College | 1,440 | 4,036 (100.0) | 315 (7.8) | 3,721 (92.2) |
| Dyal Singh College | 2,050 | 2,498 (100.0) | 224 (9.0) | 2,274 (91.0) |
| Ramlal Anand College | 561 | 3,525 (100.0) | 398 (11.3) | 3,127 (88.7) |
| Average | 4,051 | 3,187 (100.0) | 280 (8.8) | 2,907 (91.2) |
| School of Correspondence Courses | 9,822 | 628 (100.0) | 230 (36.6) | 398 (63.4) |
| | 3,825 | 613 (100.0) | 259 (42.2) | 354 (57.2) |
| | 18,520 | 522 (100.0) | 232 (42.2) | 320 (58.0) |

(Courtesy : The Economic Times)

Prof. Chittibabu Takes Over As AIU President

Prof. Saidapet Vanugopal Chittibabu takes over as the President of the Association of Indian Universities for the year 1986-87 on 1st April, 1986. Vice-Chancellor of the Annamalai University since 1980, Prof. Chittibabu brings to his new office wide and varied experience as a teacher, researcher and educational administrator. Starting his career as a teacher in History and Politics in Pachaiyappa's College, Madras, he became the Principal of Govt. College, Vellore and later rose to the Director of School Education and Director of College Education, Madras. Prior to taking up his present assignment as Vice-Chancellor, Annamalai University, Prof. Chittibabu also served as the Vice-Chancellor of Madurai University. Widely travelled, Prof. Chittibabu has visited U.S.A., U.K., Sweden, Norway, Denmark, West Germany, Japan and other countries of Far East and

studied their educational administration and organisation. Both at



Prof. S. V. Chittibabu

Madurai and Annamalai, he has been instrumental in launching several

innovative programmes like Internal Assessment Scheme and Teachers' Homes, etc. A respected educationist, Prof. Chittibabu served as a member of the Task Force on Education, Science and Technology of the State Planning Commission, Tamilnadu; Task Force on Secondary Education, Planning Commission; National Council of Educational Research and Training; High Power Committee for reappraisal of Sainik School Scheme; and the National Commission on Teachers in Higher Education.

We heartily welcome our new President Prof. Chittibabu. We hope the Association will reach new heights of efficiency during his tenure and thereby contribute to the growth and development of higher education in the country.

THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY

PATIALA

The Thapar Institute of Engineering & Technology, Patiala was set up in the year 1956 as an affiliated college initially under the privileges of Panjab University, and later under Punjabi University, Patiala. The Institute has been declared as an Institution Deemed to be a University under Section 3 of the UGC Act, 1956 by the Govt. of India, Ministry of Human Resource Development (Deptt. of Education), New Delhi, vide notification No. F.9-12/84-U.3 dated 30th Dec., 1985.

The Institute offers academic programmes at the undergraduate level leading to Bachelor of Engineering (BE) degree, and at the postgraduate level leading to Master of Engineering (ME) and at the research level Doctor of Philosophy (Ph.D.) degree. It also offers a three year degree course in Master of Computer Applications.

The number of seats in different academic programmes is as under :

| Course | Branch of Specialization : | No. of Seats |
|-----------------|---|--------------|
| B.E. | Civil | 60 |
| | Electrical | 30 |
| | Electronics & Electrical Communications | 15 |
| | Electronics (Instrumentation & Control) | 15 |
| | Mechanical | 45 |
| | Industrial (Design) | 15 |
| | | |
| M.C.A. | M.C.A. | 30 |
| M.E. Civil | Structural Engineering (Full-time) | 13 |
| | Structural Engineering (Part-time) | 10 |
| | Environmental Engg. (Part-time) | 10 |
| M.E. Electrical | Power & Machines (Part-time) | 10 |
| | Computer Science (Part-time) | 10 |
| M.E. Mechanical | Heat Power (Part-time) | 10 |
| | Industrial Engg. (Part-time) | 10 |

A Centre for Energy Studies has been established on the campus. A Centre for Environmental Studies and Research will be functioning very soon. The Institute is functioning as a Resource Centre for CLASS Programme.

The Thapar Group of Industries has set up a Corporate Research & Development Centre on the campus. The research facilities at the centre are available to the members of the faculty and the students of the Institute.

REGIONAL RESEARCH LABORATORY : JORHAT : ASSAM

(Council of Scientific & Industrial Research)

ADVERTISEMENT No. 3/86

Applications in the prescribed forms (Available free of cost from the Administrative Officer, Regional Research Laboratory, Jorhat-6 (Assam), on sending a self addressed big envelope affixing 0.45 paise stamp with a written request stating advertisement number and name of the post) are invited from candidates for the following position for R.R.L., Jorhat.

A. Scientist 'E' I/'E' II-3 (three) posts

Rs. 1500-60-1800-100-2000/- Rs. 1800-100-2000—125/2-2250/-

E.Q. for post No. 1

This is a senior management position in Chemical Engineering Divn., requiring higher level leadership and R&D expertise in process development/process design.

E.Q. : 1st class B.E./B.Tech. in Chemical Engineering with 12 years R&D experience or M.E./M.Tech./M.S./Ph.D. with 10 years R&D experience. Specialization required in any of the following fields.

1. Chemical Plant Design, Modelling and Simulation of Chemical Process Systems, Chemical Reaction Engineering, Unit Operations/Mass Transfer, Process Control and Instrumentation.

J.R. : Chemical Process design and development work in a research institution in areas like pesticides, petrochemicals, drugs, essential oils, coal, inorganic chemicals, etc. with adequate knowledge of computer programming, design of experiments, scale-up concepts & erection of pilot and semi-commercial plants and ability to interact with scientists of other disciplines.

E.Q. for Post No. 2

M.Sc. 1st class with 12 years experience or Ph.D. in Inorganic Chemistry with minimum 10 (ten) years research and developmental experience in the fields of coordination chemistry/silicates/cement/industrial inorganic chemicals including oil field chemicals/utilization of ores and minerals, including industrial waste.

Preference will be given to candidates having experience in more than one field.

J.R. : To plan, coordinate, guide and conduct R&D activity in the above areas.

E.Q. for Post No. 3

B.E./M.Sc. 1st Class with electronics having 12 years experience or M.E./Ph.D. with 10 years experience in electronics/instrumentation/Telecommunication.

J.R. : Ability in handling, in—servicing, maintenance, testing, calibration & installation of sophisticated analytical instruments such as Mass Spectrometer, NMR, GC, HPLC, IR,UV/VIS, X-ray diffractometer, Ultracentrifuge, Derivatograph, Sulphur analyser, etc. and Pilot Plant Instrumentation. He should be able to guide his juniors in their work.

B. Scientist 'C' 1 (One) post

Rs. 1100-50-1600/-

E.Q. & Exp. : A first class B.E./B.Tech. in Chemical Engineering with six years experience or M.E./M.Tech./M.S. in Chemical Engineering with 4 years or Ph.D. (Chemical Engineering) with 2 years experience having specialization in any of the following fields :

Chemical Reaction Engineering, Modelling and Simulation of Chemical process Systems, Process Control and Instrumentation, Rheology of Polymeric materials.

J.R. : The candidate will work on process development and kinetics, modelling and simulation studies of gas liquid/phase transfer catalyzed/gas-solid reactions with adequate knowledge of Computer programming (Fortran IV), Scale-up criteria for unit operations/processes and Applied mathematics.

C. Scientist 'B' 3 (three) Posts

Rs. 700-40-900-EB-40-1100-50-1300/-

E.Q. for post No. 1 (Reserved for Scheduled Caste)

1st Class B.E./B.Tech. or M. Tech./M.S. degree with specialization in Reaction Engineering/Coal processing with minimum 2 years experience in a research organization/industry, in process development/scale-up/modelling related to coal/petrochemical/essential oil/pesticide fields having knowledge in Computer programming in BASIC/FORTRAN/experience in the development of computer programming in FORTRAN IV.

J.R. : To assist the senior scientists in process development, bench/pilot scale facility creation, process design, simulation & modelling.

E.Q. for Post No. 2 (Reserved for Scheduled Caste).

1st class M.Tech. (Chemical Engineering) in Chemical Plant Design/Chemical Reaction Engineering/Computer aided design/or 1st class B.Tech. in Chemical Engineering preferably with two years experience in

the design of chemical process equipment/modelling and simulation having knowledge of computer soft ware for the design of chemical process equipment/modelling/simulation or optimization/experience in operation of 8 bit/16 bit mini computers.

E.Q. for Post No. 3

M.Sc. Ist class/Ph.D. in Microbiology or microbial fermentations or microbial enzymes or plant pathology.

J.R. : To assist the Senior Scientists and to carry out microbiological R&D work.

D. Junior Technical Assistant-4 (four) Posts

Rs. 425-15-500-EB-15-560-20-700/-

E.Q. for Post No. 1 (Reserved for Scheduled Caste).

B.Sc. with Botany or Chemistry as one of the subjects.

J.R. : The candidate has to do chemical analysis of medicinal & aromatic plants and work on tissue culture aspects.

E.Q. for Post No. 2 (Reserved for Scheduled Caste)

B.Sc. with Chemistry as one of the subjects.

J.R. : To assist the Scientist in carrying out Chemical & Instrumental Analysis of industrial raw materials and finished products.

E.Q. for Post No. 3 & 4

B.Sc. with Chemistry as one of the subjects.

J.R. : To assist the scientists in evaluation of the additives developed in the laboratory and to evaluate petroleum samples to assist the scientists in the Pilot Plant work.

E. Computer Assistant 1 (one) Post. (Reserved for Schedule Tribe)

Rs. 425-15-500-EB-15-560-20-700/-

E.Q. : B.Sc. with Chemistry as one of the subject in degree course having Diploma/Certificate in computer programming in one or more of BASIC, COBOL, FORTRAN-IV languages and Systems Analysis & Design.

Experience : (i) One year experience in the operation of 8 bit/16 bit mini computers and use of software like word-processor, DBASE, Spreadsheet, etc., in a reputed organization.

(ii) Proficiency in typewriting/key-punch operation.

J.R. : To assist the scientists in operation of the mini computer systems, execution of programs, assignments etc., and over all upkeep of the computer section.

GENERAL

(i) Higher starting salary may be given to exceptionally qualified and experienced candidates on the recommendation of the Selection Committee.

(i) In addition to basic pay, dearness allowance is admissible as per CSIR rules in force. Total emoluments at the minimum of the scale will be Rs. 3,200/- for Sct. EI Rs. 3,676/- for Sct. EH Rs. 2750/- for Sct. 'C' Rs. 1,907/- for Sct. 'B' Rs. 1,300/- for J.T.A. and Computer-Assistant. Free medical treatment, leave travel concession, pensionary benefits, etc., are also admissible as per rules.

(iii) The reserved vacancies are also open to general candidates. The general candidates will be appointed only if no suitable Scheduled Caste & Scheduled Tribe candidates are available to fill-up the reserved vacancies.

(iv) Persons who are already in Govt./Semi Govt. Organisation should apply through proper channel. Candidates are required to specify and attach documentary evidence (attested copies) of E.Q. and Exp. claimed.

(v) The application in the prescribed form together with crossed postal order of Rs. 8/- (in case of general candidates) payable to the Director, RRL-Jorhat-6 (Assam) should reach him by 15-4-86. SC/ST candidates need not pay any fee (IPO) along with their applications.

Applications received after this date will not be entertained. Candidates called for interview will be paid 2nd class railway fare by the shortest route for the to and fro journey.

(vi) "Since it is not possible to call all the eligible candidates for interview/personal discussion, the applicants to be shortlisted for the purpose and the decision of the Council Laboratories/Institute will be final in this regard.

(vii) INDIAN CANDIDATES APPLYING FROM FOREIGN COUNTRY MAY SEND THEIR APPLICATIONS UPTO A FORTNIGHT AFTER THE NORMAL CLOSING DATE IN STANDARD APPLICATION FORM SUPPLIED BY OUR MISSIONS ABROAD AND WITHOUT APPLICATION FEE.

(viii) Canvassing in any form and/or bringing in any influence, political or otherwise, will be treated as disqualification for the posts.

INTERIM ENQUIRIES WILL NOT BE ATTENDED TO

Dr. Karanth Addresses Convocation of Gulbarga University

Text of the Convocation Address delivered by Dr. Shivarama Karanth, an eminent Kannada litterateur, at the Gulbarga University, Gulbarga on March 4, 1986.

"Your Vice-Chancellor has given me this opportunity of sharing some of my ideas with you who, having risen to a certain height in Gulbarga University, are stepping out with graduate or postgraduate degrees. This, certainly, is not the occasion for me to tender advice to you who are adult and mature. You who have conducted your studies in the limited environs of a university are now passing out into a great universe which has little to do with universities. Whether you like it or not, it's you who have to face it. Self-interest is not important there; it's the life of many that is important; and that provides the measuring yard-stick. How you face that

of accomplishment is possible through the syllabi that they design and prescribe. Consequently, whether it is graduation or postgraduation, those that get admission into these universities need not have any intellectual curiosity or ambition or competence. The degree is expected to be easy of access to all those who seek admission here. And the feeling is that there should not be any difficulty or hindrance in achieving this. But, in this respect, my views about Madras University which I happened to visit for a couple of days in the thirties are quite different. Therefore, I shall try to place before you some of these experiences.

Convocation

universe depends on what you think of it and how you look at it. Several developed nations do still believe that universities are great centres where seekers of knowledge acquire a deep and varied understanding of the universe. Nobody can help wondering at the number of universities that are springing up, their structure and the astounding number of young men and women who get in and get out of them in India. The acquisition of knowledge is not important here; nor is the quest for truth. Instead, we have amidst us leaders who believe that our main goal consists in earning a satisfactory livelihood. And there are people who labour under the illusion that such a task

Although the people in advanced countries recognise the importance of earning their livelihood and also of professions which secure it, they do not need to go to universities for this purpose. At the most, opportunities are created at the P.U.C. level for the acquisition of the scientific and technical knowledge that is necessary for such professions. In this situation, the people who come out from advanced or secondary technical schools do not depend on the Government for getting their jobs. The various industries of the country absorb them and give them a chance to earn their living. Those who long to acquire the fundamental knowledge of various disciplines

would never crave for grace marks from examiners. The seekers of higher learning wouldn't desire the standards lowered to their intellectual level. Instead, they would toil hard and retain their zest and devotion till they reach their goal. Almost every day they see before their very eyes a large scale emergence of new theories and discoveries from different research centres and universities. Viewed from this angle, the report that G.B.S. Haldane (a British scientist who visited India some two decades ago and wanted to settle down here) gave on the universities of contemporary India, should put our nation to shame. Concerning the professors and researchers here, he has spoken at length—not about their devotion, but the absence of it! It is some two decades ago or so that he gave this opinion, and since then, the number of universities that have sprung up as well as the number of so-called professors therein and the number of degree-holders that come out is indeed frighteningly large. Time was when Indians regarded Brihaspati as a great man; he was more or less our lone ideal. But now-a-days the number of such Brihaspatis has grown larger than the number of satellites that orbit around the nine planets!

We must have gone wrong either in our vision or in its realisation. The ever-swelling number of our college professors and the out-going graduates should astound anyone who witnesses this phenomenon.

If an inquiry is conducted into the quantum as well as the quality of the research that our professors have been conducting all through their life, and if an attempt is made to ascertain as to how much of their research work is getting published in European, Japanese and American scientific periodicals, we may have to hang down our heads in shame by way of an answer.

We who boast that we are inferior to none in the world do at

the same time express our concern about brain drain. We are the people who complain that intellectual competence, university admissions and professional promotions are not interrelated in our country. So, we are not aware how the Indians who have migrated abroad live there. Probably they have gone over there with the hope of earning a little more money than they can get here. To that extent we should feel happy. The vacancies thus created by their departure to foreign countries would provide us with better employment facilities ! We have a proverb in Kannada which means, "Let the neighbour's house burn; that gives us a chance to tether our own calf."

But our fondness for name and fame has not dwindled. Praise from anyone pleases us. One Mr. Alfred Nobel, a citizen of Sweden, instituted, at the very start of this century, a prize after his name for those who made extraordinary contribution to knowledge in various fields. Some six or eight such prizes are given away every year to pre-eminent men in areas like peace, economics, literature, etc. It is true that a few of our own countrymen have received this award. We remember Rabindranath Tagore and C.V. Raman. And we cannot at all forget Narlekar and Khorana. And in recent days Chandrasekhar's name has been added to the list. Excepting philosophers and apostles of peace, men in other fields do not yet have a conducive atmosphere for work and research in our country. As we look at the list of the award-winners and their areas of accomplishment every year, we can have just one solace—that is, the only science that India has relied on is related to spiritual knowledge; and we may feel contented that we alone will get a suitable award for it, when we go to the other world !

Young friends : I have my reason for telling you this long story. I

who have travelled all the world over as well as read about it feel that this is not the time for India or her countrymen to remain complacent. If our problems were the problems only of employment or livelihood, and if we watched the extent and magnitude of research that is going on in foreign countries, and their effect on our livelihood, we would really feel frightened. Let the subject be astronomy or astrophysics or medicine, or nuclear fission or fusion—all these, we may believe, involve ceaseless research and scientific progress. We would be able to compete with the outside world only if we could prevent the influx of foreign influences by erecting a wall, as it were, around our country. That, of course, is a highly impossible task. We have to learn a lesson from the example of Japan which, inspite of being a war-torn country, has been competing with the major nations of the world in a number of fields.

Our communication media, our means of transport, our industrial products, and our know-how—nay, the know-how we have borrowed from others—are all outmoded by three or four decades. Thus, our industries, unable to compete with those of foreign countries, and so subsisting under special protection, are making money by exploiting our countrymen. Our governmental employment opportunities are becoming areas which do not demand

merit as a chief criterion; and so are our private industries. What will happen if a great revolution or a great war overpowers our country tomorrow and innumerable missiles are dropped on it ? Surrender would be our only option, despite our large population of seventy crores.

If you believe that earning a livelihood is the only object in your life, nobody can help you. If only your and your rulers' boastful proclamation that we have stepped into the twenty-first century is coupled with reflection, our universities will never become public markets of education as they are now. We should have education which is conducive to intellectual competition and happy future. I feel that leisure-loving professors and examination-shunning students are not welcome from the point of view of national health.

Consequently, it's time for every graduate who steps out from here to know what place India and Indian citizens should have in the comity of nations and strive towards achieving this goal. Though many may not realise it, it has become an object of my special reflection in my old age. It is my fervent wish that a time would come when India and the people therein would hold their heads aloft and live proudly with their counterparts in the advanced countries of the world. That, I suppose, is not an unworthy wish." □

Book Production in India

The number of book titles published in India during the year 1981 was of the order of 11,562. This worked out to 0.2 book titles per 10,000 inhabitants according to the Unesco Statistical Year Book 1983.

Finland with five million inhabitants accounted for 8,227 book titles i.e. 17 titles per 10,000 inhabitants in 1981. Soviet Union published

83,007 books while USA had 76,976 books to its credit. But both these countries had less book titles per 10,000 inhabitants i.e. 3.1 and 1.2 respectively as compared to Finland.

India ranked 23rd while USA and USSR got 21st and 10th positions respectively.

[Courtesy : DAE Newsletter]

CENTRAL MINING RESEARCH STATION, DHANBAD

(Council of Scientific & Industrial Research)

Advertisement No. 1/86

JOB OPPORTUNITY

Central Mining Research Station, a reputed National Laboratory engaged in the service of mining and allied Industries, has developed excellent R&D facilities and expertise in the areas of mining technology, mine engineering, safety and Health of Mine workers. CRMS is planning for rapid expansion to meet the R&D needs of mining industry. The Institute provides good facilities for young scientists to work for the award of Post-graduate degree, M. Tech./Ph.D. The career opportunities are excellent as each qualified scientists can aspire to get time bound promotion by assessment upto the scale of Deputy Director and recognition as a specialist. In addition, there is scope to earn upto a maximum of Rs. 15,000/- per annum in consultancy.

Applications are invited from candidates having aptitude in research for the following posts :

Group No. 1

(1) **SCIENTIST 'EI'** (Scale of pay Rs. 1500-2000/- (Minimum emolument at initial stage Rs. 3280/- approx).

No. of Post : One (likely to increase)

(a) **Qualification Essential :** First class M.Sc./1st class B.E. with 12 years experience of computer application & Mathematical modelling of Engineering problems or M.Tech./M.E./Ph.D. with 10 years of R&D experience with original work as evidenced by publications and leadership.

(b) **Desirable :** Experience of working with main frame computer using 'on line terminal' is desirable.

(c) **Job Requirement :** To head computer section to provide Central Computer facility.

Group No. II

(2) **SCIENTIST 'C' :**

No. of Posts : 8 (Eight) (likely to increase)

Scale of pay : Rs. 1100-1600/- (Minimum emolument at initial stage Rs. 2810/- approx).

POST NO. 1 & 2

(a) **Qualification Essential :** First class B.E. (Mining) with minimum of three years experience in Teaching/Research/Industry-only for Mining graduates.

(b) **Desirable :** M. Tech./M.E./Ph.D. (Mining)

(c) **Job Requirement for Post No. 1 :** To work on rock mechanics problems in hard rock mines.

(d) **Job Requirement for Post No. 2 :** To work on roof supports in coal mines.

POST NO. 3

(a) **Qualification Essential :** First class B.E. (Mining Machinery/Mechanical) with 6 years experience.

(b) **Desirable :** M.Tech./Ph.D. (Engg.) with 4 years experience in design of mining equipment.

(c) **Job Requirement :** To work on improving the design of mining equipment & supports.

POST NO. 4

(a) **Qualification Essential :** M.E./M.Tech. in hydrology/hydrogeology with 4 years experience or Ph.D. (Hydrology/Hydro-geology) with 2 years experience.

(b) **Job Requirement :** To conduct hydrological investigation in mining areas.

POST NO. 5

(a) **Qualification Essential :** First class M.Sc. (Environmental Science)/First class B.E. with 6 years experience/M.E. with 4 years experience/Ph.D. (Environmental Science) with 2 years experience/Ph.D. Engineering.

(b) **Desirable :** Experience on environmental problems in mining areas preferable.

(c) **Job Requirement :** To conduct R & D investigation in the field of environment & ecology.

POST NO. 6

(a) **Qualification Essential :** First class M.Sc. (Library and Information Science) with 6 years professional experience in a responsible capacity in recognised Scientific/Technical/Industrial/Library or Documentation Section with expertise in information processing/indexing/computerised system/SDI and other documentation and information retrieval services.

(b) **Desirable :** 1st class M.Sc./1st class B.E. with 6 years experience with knowledge of computerised information processing, system analysis and programming and of a foreign language other than English.

(c) **Job Requirement :** To carry out information processing/indexing of literature intake of CMRS Library/developing specialised information files utilising manual methods or with in-house computer facility and providing appropriate documentation services

and/or other functions assigned to him from time to time.

POST NO. 7

- (a) **Qualification Essential** : First class B.E. (Mining/Mechanical/Structural) with 6 years experience Ph.D.
- (b) **Desirable** : Knowledge of support equipment in mines and computer application in design of equipment.
- (c) **Job Requirement** : To design & develop power support and other equipment to be used in mines.

POST NO. 8

- (a) **Qualification Essential** : First class M.Sc. (Mining/First class B.E. (Mining) with 3 years experience/Ph.D. with 2 years experience.
- (b) **Desirable** : Research experience in heat transfer/fires.
- (c) **Job Requirement** : R & D work in Mine fire & Coal Research.

Group No. III

(3) SCIENTIST 'B'

No. of Posts : 17 (Seventeen) (likely to increase).

Scale of Pay : Rs. 700-1300/- (Minimum emolument at initial stage Rs. 1946/- approx.)

POST NO. 1

- (a) **Qualification Essential** : First class M.Sc. (Physics), preferably having over two years experience with photo elasticity.

POST NO. 2

- (a) **Qualification Essential** : Ist class M.Sc. (Physics) with Electronics or M.Sc. (Electronics), preferably having over 2 years experience in photogrammetry and information.
- (b) **Job Requirement for Post No. 1 & 2** : To undertake studies in photoelastic modelling and photogrammetry respectively and to assist in field study of mining problems in India.

POST NO. 3

- (a) **Qualification Essential** - Ist class B.E. in Mining preferably with coal mining experience.
- (b) **Job Requirement** : To undertake observations on R&D work in mining anywhere in India.

POST No. 4 (Reserved for S/C)

- (a) **Qualification Essential** : Ist class M.Sc. in Applied Mathematics/Statistics/Applied Physics or first class B.E. in Computer Science or Engineering.
- (b) **Desirable Experience** : Over two years research experience with good knowledge of numerical techniques computer programming using pertrain Basic & Cobal language for the job to solve mathematical problems numerically with different tech-

niques and to develop computer programming or software for office automation.

POST NO. 5

- (a) **Qualification Essential** : First class B.E. (Mining) preferably with experience.
- (b) **Job Requirement** : To work on ground control problems.

POST NO. 6

- (a) **Qualification Essential** : First class B.E. (Mining).
- (b) **Desirable** : Specialisation in opencast mining.
- (c) **Job Requirement** : To provide competent technical/scientific assistance in the execution of research projects in the Laboratory/field pertaining to problems in opencast mines and slope stability.

POST NO. 7 (Reserved for S/T)

- (a) **Qualification Essential** : First class B.E./B.Tech. or M.E./M.Tech. in Civil Engineering having over two years experience in geo-technical field and ground monitoring.
- (b) **Job Requirement** : To provide competent technical/scientific assistance in the execution of research projects in the Laboratory/field pertaining to stability of slope in open cast mines.

POST NOS. 8,9,10

- (a) **Qualification Essential** : First class M.Sc. (Geology/Applied Geology/First class B.E. (Mining/Civil) having over 2 years experience in drilling/blasting/rock fragmentation/work mechanic.
- (b) **Job Requirement** : To undertake investigations in the field of rock blasting/drilling/strata control in mines, etc.

POST NO. 11

- (a) **Qualification Essential** : First class M.Sc./Ph.D. in Math./ Applied Math. having over 2 years experience preferably in methods of numerical analysis and good knowledge of computer programming.
- (b) **Job Requirement** : To undertake investigations in the field of rock blasting/drilling/strata control in mines, etc.

POST NO. 12 : (Reserved for S/C)

- (a) **Qualification Essential** : Degree in Science with 1st class Master's degree Library & Information Science or Associateship in Information Science from INSDOC/DRTC with experience in a supervisory capacity in indexing of scientific literature, preparation of abstracts and other documentation activities in a scientific/technical/industrial library of documentation centre.
- (b) **Desirable** : Master's degree in Science training and experience in programming for computer based

information retrieval systems. Proficiency in a foreign language other than English.

POST NO. 3

- (a) **Qualification Essential** : First class B.E. (Mining).
- (b) **Desirable** : M.E. or knowledge of computer applications preferred.
- (c) **Job Requirement** : To work on re-organisation of mine transport system (surface/underground), hydraulic transportation of solids in pipes. May be required to visit mines, identify the problems and find a solution.

POST NO. 14

- (a) **Qualification Essential** : First class M.Sc. (Math. Computer oriented).
- (b) **Desirable experience** : Possessing over two years experience in research or application of mathematical techniques in formulation and solution of heatflow or fluidflow problems with special reference to mathematical modelling suitable for computer application.

POST NO. 15

- (a) **Qualification Essential** : First class M.Sc. (Geology/ Applied Geology) with knowledge of rock mechanics.
- (b) **Desirable** : 2 years experience in teaching/research/ industry on rock mechanics problems.
- (c) **Job Requirement** : To work in the Geo-mechanics aspect of mining.

POST NO. 16

- (a) **Qualification Essential** : First class B.E. (Civil) preferably with 2 years experience in Mines/Tunnels.
- (b) **Job Requirement** : To work on Rock mechanics problems of tunnels/mines.

POST NO. 17

- (a) **Qualification Essential** : First class B.E. (Mining Machinery/Mechanical/Electrical).
- (b) **Desirable** : M.E. degree or 2 years experience in modern mining machines/equipment/Electronics.
- (c) **Job Requirement** : To assess the reliability and efficiency of Mining Machines.

Group No. IV

- (4) **Junior Technical Assistant/Junior Scientific Assistant:**

No. of Posts : 10 (ten) (likely to increase)

(Two posts reserved for SC and one for ST)

Scale of Pay : Rs. 425-700/-

- (a) **Qualification Essential** : B.Sc. (Physics group) Diploma in Engg. (Mining/Mechanical) of 3 years duration.
- (b) **Desirable** : Over 2 years experience in Mining/ Documentation/Publication / Liaison / Environment, Computer application and data entry, and in a Research Laboratory or teaching.

- (c) **Job Requirement** : To assist in day to day work of Laboratory on different R&D projects. The candidates may be required to go in field for observations and assistance.

(5) JUNIOR RESEARCH FELLOWS :

No. of posts : 4 (four) (Under Projects)

Stipend : Rs. 800/- fixed p.m.

- (a) **Qualification Essential** : First class M.Sc. (Electronics/Applied Math.) or B.E. Computer/Electronics/ Electrical Engg.
- (b) **Job Requirement** : Design of microprocessor based on mining instruments or software development for computer application in mine management.

GENERAL CONDITIONS

(1) All the above posts carry usual allowances as admissible to Central Government employees of the same pay and status stationed at Dhanbad. Higher initial start may be considered for deserving candidates. Total emoluments at the minimum of the grades at present are as follows :

| | | |
|---------------|----|------------|
| On Rs. 1500/- | .. | Rs. 3280/- |
| On Rs. 1100/- | .. | Rs. 2810/- |
| On Rs. 700/- | .. | Rs. 1946/- |

(2) They may be assigned any other job and their services may be transferred to any part of India for working in the field or in the Laboratories of CRMS at the field of station to be established in different parts of India.

(3) Candidates with engineering qualifications, if so required are liable to serve in any defence service or post connected with defence of India for a period of not less than 4 years, including period spent on training, if any, provided that such a person(s) shall not be required to serve on the above post after expiry of 10 years from the date of appointment, and (b) shall not be ordinarily required to serve as aforesaid after attaining the age of 45 years.

(4) A lower standard of suitability consistent with efficiency will be applied in respect of Scheduled Caste/ Scheduled Tribe candidates. Candidates belonging to these communities should invariably enclose an attested copy of the original caste certificate issued by a competent authority with their application failing which they will not be entitled to the concessions otherwise admissible to them.

(5) Since, it is not possible to call all the candidates for interview/test, the applications will be shortlisted for the purpose and the decision of a duly constituted screening committee of the Institute will be final in this regard.

(6) Applicants called for interview will be paid single second class rail fare to and fro from the actual place of undertaking the journey or from the normal place of residence whichever is nearer to Dhanbad Railway Station, or production of relevant documents of travel.

(9) The prescribed application forms for the above posts may be obtained from the Administrative Officer, Central Mining Research Station, Dhanbad (Bihar) by sending a requisition alongwith a self-addressed envelope STAMPED (worth Rs. 0.70) (12x10 cms.) on or before 23.4.86. Applications duly completed (supported by attested copies of Certificates and testimonials) along with a non-refundable fee of Rs. 80.0 (no application fee is prescribed for SC/ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Mining Research Station, Dhanbad, must reach him on or before 9-5-86. Applications received after this date will not be entertained.

(10) Separate application accompanying with separate postal orders should be submitted for each post. Candidate should specifically mention the category of post

and post No. against which he is submitting the application.

Number of Advertisement, Name of the post applied for and full address in block letters are to be indicated at the top of the requisition for obtaining the application forms.

(11) Applying for any position advertised herein not by itself automatically entitle an applicant to be called for interview, which will be governed by prevailing rules and regulations.

(12) Applications from employees working in Government Deptt. Public Sector, Undertakings and Government funded Research Agencies will be considered only if forwarded through proper channel and with a clear certificate that the applicant will be relieved within one month of receipt of the appointment order.

(13) Applications received after last date viz: 9.5.86 and/or incomplete applications are liable to be summarily rejected. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as disqualification for the post.

INTERIM ENQUIRIES WILL NOT BE ENTERTAINED

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INDIAN SCHOOL OF MINES

DHANBAD-826004

No. 614001/86

Dated : 10-3-1986

ADMISSION TO DISM/M. TECH/M. PHIL PROGRAMMES

1.0 Applications are invited for admission to following Postgraduate programmes for academic session 1986-87 commencing on 16.6.1986 at ISM, a deemed University since 1967 under the UGC Act.

2.1 DISM/M. TECH in Engineering Disciplines

M.Tech programmes in engineering subjects at ISM, in common with other universities, are of 3-semester duration. A unique feature at ISM, however, is the award of a postgraduate DIPLOMA OF INDIAN SCHOOL OF MINES on completion of the first two semesters. The third semester (for project work) leading to award of M. Tech can be pursued either in the Institution or on-job at respective places of work.

| Discipline | Eligibility Qualification |
|--|---|
| | B. Tech. or equivalent degree in |
| (1) Drilling Engineering (6 seats) | —Mech/Prod/Min Engg or Mining Machinery |
| (2) Maintenance Engg & Tribology (6 seats) | —Mech/Prod/Min Engg or Mining Machinery |
| (3) Opencast Mining (10 seats) | —Min. Engg or Mining Machinery |
| (4) Fuel Engineering (6 seats) | —Fuel Chem/Met/Mech/Min Engg. |

2.2 M. TECH in Earth Science Disciplines

M. Tech programmes in Earth Science disciplines at ISM are of 2-semester duration. There are six seats in each programme.

| Discipline | Eligibility Qualification |
|---|---|
| 1. Geophysical Instrumentation & Techniques | —M. Sc. Tech. in Appl. Geophysics. |
| 2. Mining Geophysics | —M. Sc. Tech. in Appl. Geophysics. |
| 3. Mineral Exploration | —(a) M. Sc. Tech. or equivalent degree in App. Geology. (b) M. Sc. degree in Geology with two years, field experience. |
| 4. Engineering Geology | —(a) and (b) as above Or B. Tech. or equivalent degree in Civil Engineering. |

2.3 Admission to M. Tech. Programmes :

Admission would be made only from amongst candidates who have qualified in GATE, on the basis of GATE score and *viva-voce* conducted at I.S.M.

Other M. Tech. Programmes

2.4 The School also offers M. Tech/DISM in the following disciplines, but there shall be **no admission** to these courses in this semester as respective batches are already in residence.

Discipline

Eligibility Qualification

B. Tech. or equivalent degree in

(a) Industrial Engg and Management (15 seats)

Any branch of Engg with at least six months industrial training experience.

(b) Mineral Engg. (15 seats)

Chem/Met/Min/Mech/Elec. Engg.

(c) Mining Engg (6 seats)

Mining Engg.

With specialisation in

(1) Mine Planning & Design

(2) Rock Mechanics

(3) Mine Environment

(d) Petroleum exploration (Sponsored Course)
(6 seats)

M. Sc. Tech. or equivalent qualification in Appl.
Geol/App. Geophysics.

(e) Petroleum Engg (Sponsored Course)
(6 seats)

Ch/Mech/Petern. Engg.

3.1 M. PHIL (2—Semester) in Science Disciplines

ISM also offers M Phil programmes in Appl. Geology, Appl. Chemistry, Appl. Mathematics and Appl. Physics.
No. of Seats—Eight in Appl. Geology and six each in other disciplines.

Eligibility—Postgraduate degree or equivalent in relevant subject (including Statistics in the case of M. Phil Appl. Maths)

3.2 Admission to M. Phil. programmes :

Admission would be made from amongst candidates who have qualified in the All-India written test for award of JRF's conducted by UGC and CSIR on the basis of the test score and a *viva-voce* conducted at ISM.

4. General Information :

4.1 15% of seats are reserved for scheduled caste and 7½% for scheduled tribe candidates, if available, otherwise they will be treated as unreserved.

4.2 Other things being equal, preference shall be given to sponsored candidates; sponsorship in this context meaning retention of lien on post and grant of suitable allowance by the concerned organisation. Applications of these candidates should carry endorsement to this effect from the employer.

4.3 Candidates called for appearing in the Viva-Voce (likely to be conducted in the 1st week of June 1986 at ISM, Dhanbad) will be paid to-and-fro second class railway fare by the shortest route.

4.4 **Scholarship** : Non-sponsored candidates admitted to the above programmes will be eligible for a scholarship of Rs. 1000/- p.m. for a period not exceeding the duration of the programme.

4.5 Candidates who qualify in the M. Phil. programme (before they have reached the age of 30 years), with a minimum grade A in the dissertation may be considered for award of a research fellowship to work for Ph. D degree of the School in the relevant discipline **provided vacancies in the concerned discipline exist.**

4.6 Courses where the number of students admitted falls down below four may not be run.

5. **How to apply** : Applications on prescribed forms should reach the undersigned, by **15th April, 1986** at the latest. The forms are obtainable by sending a crossed postal order for a sum of Rs. six only (made payable to the Registrar, Indian School of Mines, Dhanbad-826004 at ISM Post Office, Dhanbad) along with a self-addressed unstamped envelope of size 23 x 10 cm. The envelopes containing request for form must be superscribed "Request for Admission Form".

S.P. Varma
REGISTRAR

Challenges for Management

Mr Abid Hussain, Member, Planning Commission delivered the 7th lecture in the Shri Ram Memorial Lecture Series on "Challenges for Management in the 21st Century" at the Punjab Agricultural University. He said that despite phenomenal, agricultural and industrial development in the country since independence, there were millions of people in the country who were below the poverty line. He deprecated the policy of protecting import substitution, which was perhaps appropriate in the beginning of industrialization in the fifties and the sixties, but was not appropriate in a fast changing and different environment. He said if we had to improve our efficiency and compete with world market this policy of protectionism should be discarded. He felt that the spirit of healthy competition should be encouraged in the Indian economy, where concept of quality was not replaced by quantity so far. If we want to achieve high rate of growth our emphasis should shift from import to export, he said.

Mr Hussain pleaded for restructuring of industry and a scale of co-operation large enough to allow optimization of factors of production to be able to compete in the world market. He believed that our technicians, scientists and workers were not inferior as they were accepted all over the world. It was not the men or material of the country which had retarded our growth, but our own policies were responsible for the decline. Mr Hussain emphasised that fullest competence in the domestic market should be encouraged so that our products are able to compete the world market. He held that while the 20th century belonged to America and the Europe, the 21st century was bound to be of the Asia and Australasia.

Earlier inaugurating the function, Dr Sukhdev Singh, Vice-Chancellor said that after the success of green revolution, management of agriculture and assumed great importance. Tracing the history of the Department of Business Management, Dr. Sukhdev Singh said that with the financial assistance provided by Lala Charat Ram, a former member of the Board of Management of PAU it was started to produce persons of calibre for the industry. Apart from a Postgraduate Degree Course in Business Management, an evening Diploma Course was also started for the working executives engaged in industries.

Dr Karam Sing Gill, Vice-Chairman of the Punjab State Planning Board observed in his presidential remarks that we should first learn new technology and then to use it according to our needs. He laid special emphasis on the close collaboration between the scientists and the industry.

The lecture, organized by the Department of Business Management of the PAU, was largely attended by the delegates representing different industrial units and Government agencies.

More 'special assistance' for Cochin University

On the recommendation of the High Powered Committee on Strengthening of Infrastructure of Science & Technology (COSIST), the University Grants Commission (UGC) has approved a special assistance of Rs. 49.50 lakhs to the School of Marine Sciences of the Cochin University of Science & Technology. The purpose of the COSIST programme is to help University Departments which have already achieved high quality performance to do even better and raise themselves to international levels in

research facilities and quality of postgraduate education. The present allocation of Rs. 49.50 lakhs is in addition to the special assistance of Rs. 26.95 lakhs already sanctioned to the School under the 'Departmental Research Support' (DRS) of the UGC. Thus the total special assistance recently offered by the UGC to the School of Marine Sciences alone stands at Rs. 76.45 lakhs. It may be recalled that the School of Marine Sciences of the University of Cochin is the oldest such department in the country with a tradition of 48 years of teaching and research.

Meanwhile, in recognition of its academic and research attainments, the University's Department of Physics has also been identified by the UGC for special assistance. The quantum of special assistance to the Department of Physics will be determined by an Expert Committee which will soon be visiting the University.

The Ministry of Human Resource Development has also sanctioned an amount of Rs. 44.16 lakhs to the University under the 'Direct Central Assistance' programme of the Government of India for modernisation and expansion of research facilities in laser technology, opto-electronics, computer science and electronics instrumentation.

Punjab History conference

A three-day, 20th Session of Punjab History conference was organised by Punjab Historical Studies Deptt. of Punjab University, Patiala, from Feb. 28 to March 2, 1986.

In his inaugural address Chief Minister Mr. Surjit Singh Barnala exhorted historians to do intensive and objective research on various popular movements launched in Punjab during the freedom struggle. He said that the history of Punjab was perhaps the oldest in the country. However, it was not written for a long

time and was transmitted by word of mouth.

Delivering his presidential address Dr. R.K. Perti, Director, National Archives of India said the study of History of Punjab got a big jolt at the time of partition. A lot of historical material preserved in the Punjab Archives remained in Pakistan. He said the material would soon be accessible to scholars from India.

About fifty-five research papers were presented during the conference.

Prof. B.R. Grover of Indian Council of Historical Research, New Delhi, in his valedictory address recalled the contribution made by the founders of this conference especially Dr. Gairda Singh, Dr. Fauja Singh, Prof. Kirpal Singh Narang, a former Vice-Chancellor of Punjabi University.

The Chief Minister released three books published by the University on the occasion. These included the second Volume of the English translation of Guru Granth Sahib by Padam Shree Dr. G.S. Talib.

Audio cassette on cotton

The Punjab Agricultural University organised a two day Kisan Mela on March 21-22, 1986.

The Communication Centre of the University released an audio cassette on the cultivation of cotton on this occasion. This cassette contains information about the cultivation and care of cotton with special emphasis on the chemical spray against certain pests and diseases and folk songs. A cassette prepared by the Communication Centre on the cultivation of wheat last year was well received by the farmers and all the 500 cassettes were sold out within 15 days.

The University also released an educational calendar of operations for different crops which would greatly help the farmers in planning their farm operations.

State level leadership-cum-rural development camp

As a part of the State Level International Youth Year Programme, the Konkan Krishi Vidya-peeth, (KKV), Dapoli organised

News from Agril. Varsities

New cotton variety released

The State Variety Approval Committee meeting held at the Punjab Agricultural University under the chairmanship of Mr Sukhdev Singh, Director of Agriculture, Punjab, released a new variety of cotton named F 505 for general cultivation in the State. This variety has been developed at the University's Regional Research Station located at Faridkot.

According to Dr H.S. Kalsy, Director of the Research Station, F 505 is an early maturing variety recommended for cultivation throughout the Punjab State. This variety is superior to F 286 and F 414 with respect to boll number and boll weight. It is fairly tolerant to the attack of Jassid and escapes the damage from bollworms because of its early maturity. It vacates the field for the timely sowing of wheat and is, thus, highly suitable for adoption in the double cropping pattern.

It is the highest-yielder than other varieties of its group and its average yield is 24 quintals with a maximum

yield potential of 36 quintals of kapas per hectare. The new variety has outyielded F 414 and F 286 by a margin of 26 per cent and 14 per cent on the basis of average of 55 and 79 trials respectively conducted during the last six years. Its mean fibre length is 23.2 mm, ginning out-turn is 34.6 per cent and possesses superior spinning performance.

SCHOOL OF PLANNING AND ARCHITECTURE NEW DELHI-110002

(Deemed to be a University)

ANNUAL CONVOCATION

The Fifth Annual Convocation of the School of Planning and Architecture will be held on Friday, the 4th April, 1986 at 5.00 P.M. in the Planning Campus of the School at 4, Block-B, Indraprastha Estate, New Delhi-2.

The students, who graduated from the School in 1985 are cordially invited to attend the Convocation and receive the degrees.

Dr. S.Z. Qasim, Secretary to the Government of India, Department of Ocean Development will deliver the Convocation Address.

BRUNO DIAS SOUZA
DIRECTOR

SPA/AE/2/86

Sonovision

a State Level Leadership-cum-Rural Development Camp for the University youths in Maharashtra State. The camp organised at Dapoli for ten days during February 3-12, 1986 was attended by the youths from the agricultural and the non-agricultural universities in the State.

Dr. P.V. Salvi, Vice-Chancellor, Konkan Krishi Vidyapeeth, Dapoli in his inaugural address dwelt upon the different theories and aspects of leadership and exhorted the participants to utilise their training and skills for the uplift of the poor and oppressed masses in the vast rural areas of the country. The function was presided over by Dr.

S.B. Kadrekar, Director of Instruction of the Konkan Krishi Vidyapeeth, Dapoli.

In the course of the training programme, various topics such as rural economy, rural society, nursery management, social forestry, plant protection, dairy and poultry farming, tribal development, student leadership, alcoholism and drug addiction in youth, evils of dowry system, etc. were discussed in detail. The experts of the KKV and those called from the outside imparted the training. The use of different audio-visual aids was one of the hallmarks of the programme.

computerised in their departments. The Divisional Heads spelt out the activities that could be computerized in their respective Divisions i.e. Administration, Accounts, Evaluation, Sports, Cultural, etc.

Standing Committee to meet at Ooty

The AIU Standing Committee is scheduled to meet on 6th April, 1986 at Ootacamund. It will have for its consideration reports of several sub-committees that will precede it. AIU Sub-Committee on Working of Autonomous Colleges will meet at Coimbatore on 3rd April, 1986 while the Task Force on Distance Education and the Sports Committee are slated to meet at Coimbatore on April 4, 1986. The Finance Committee and the Staff Affairs Committee will meet at Ootacamund on 5th April, 1986 while a meeting of the Sub-Committee on Mutual Cooperation Among Indian Universities will be held on 6th April, 1986 shortly before the meeting of the Standing Committee. The Standing Committee will also consider the reports of Building Committee, Cultural Committee, Equivalence Committee, Research Committee and the Sub-Committee on Zone-wise Distribution of Universities that had met earlier in New Delhi on 13th and 14th March, 1986.

AIU News

AIU workshop on Computer Applications

A 2-day Workshop on 'Computer Applications' for the AIU Staff was held on 11th & 12th March, 1986 at AIU House. The Workshop was attended by the Divisional Heads and a few staff members from every Division. Inaugurating the workshop Dr. Jagdish Narain, Secretary, AIU, wished that the AIU office function as a model for the Indian Universities. Regarding the applications of computer in different Divisions he felt that at the end of the workshop, participants would be in a position to comprehend the potentialities of a computer for effective use in their work. He hoped that AIU staff would develop a favourable attitude towards computerisation.

Dr. V. Natarajan, Project Director (Exams.) made a presentation on 'computer and its applications'. This was followed by a lecture by Mr. Anadi Srivastava of M/s Technocrats Ltd., who gave details of the various software packages deve-

loped for Accounts, Administration, Sports and Evaluation Divisions. In the discussions that followed, there was a consensus that every Division should computerise such activities as require a large volume of data to be processed, and various types of analyses to be carried out.

On the following day, the Divisional Heads were invited to identify the areas of work that could be

News from UGC

Assistance for Mysore University's Geology Department

The University Grants Commission, on the recommendations of a Review Committee, has agreed to extend further financial assistance amounting to Rs. 46.7 lakh for a period of five years to the Department of Geology of Mysore Univer-

sity under its special assistance programme.

This financial assistance will include Rs. 34.5 lakh for meeting the non-recurring expenditure on the equipment, workshop, spares, air conditioning and vehicle, Rs. 4.7 lakh for teaching and technical staff and research fellowships and Rs. 7.5 lakh for meeting expenditure on other items.

Assistance to Bangalore Varsity's Maths Deptt.

The University Grants Commission has, on the recommendations of the assessment Committee, agreed to provide financial assistance of Rs. 26.25 lakhs to the Mathematics Department of the Bangalore University as part of its special assistance programme. This assistance is for a period of five years and includes Rs. 4.50 lakhs for meeting non-recurring expenditure on books and journals and on accessories for existing computer system and Rs. 21.75 lakhs for recurring expenditure on research staff, visiting fellows, purchase of computer time, maintenance of computers, arranging seminars and on contingencies.

Varsities' Wrestlers 3rd in Nationals

Indian Universities Wrestling Team claimed 3rd position in the Grecco Roman Style of the National Wrestling Championship, held in Delhi from March 6 to 9, 1986. The Indian Universities' Wrestlers bagged three Silver Medals and four Bronze Medals.

The medal winners were:

| | | |
|------------------------------|--------------------------------------|---------------------|
| Om Prakash (57 Kgs) | Silver Medal (Greeco Roman Style) | H.A.U. (Hisar) |
| Praveen Kumar (Over 100 Kgs) | Silver Medal (Greeco Roman Style) | M.D.U. (Rohtak) |
| Sunny Gill (Above 100 Kgs) | Silver Medal (Free Style) | G.N.D.U. (Amritsar) |
| Mihavir Prashad (48 Kgs) | Bronze Medal (Greeco Roman Style) | Kurukshetra Univ. |
| Azad Singh (68 Kgs) | Bronze Medal (Greeco Roman Style) | H.A.U. (Hisar) |
| Paramjit Singh (74 Kgs) | Bronze Medal (Free Style) | G.N.D.U. (Amritsar) |
| Sukhbir Singh (100 Kgs) | Bronze Medal (Free Style) | Kurukshetra Univ. |

CALENDAR OF EVENTS

| Proposed Dates of the Event | Title | Objective | Name of the Organising Department | Name of the Organising Secretary/Officer to be contacted |
|-----------------------------|---|---|---|--|
| May 2-15, 1986 | Summer School on Crystal Growth, Characterisation and Device Fabrication | An orientation course in (i) Experimental Crystal Growth; (ii) Theories of Crystal Growth; (iii) Nucleation; and (iv) Characterisation | Crystal Growth Centre, Anna University, Madras | Dr. P. Ramasamy, Crystal Growth Centre, Anna University, Madras |
| May 8-10, 1986 | National Seminar on Interaction between research in Universities and Industries | To identify the industries where University research can play an important role and find out ways and means of active interaction between research in Universities and Industries | University of Delhi, Delhi | Dr. Yogesh Kumar, Department of Physics and Astrophysics, University of Delhi, Delhi |
| May 13-31, 1986 | Orientation Programme on better utilization of irrigation resources | To acquaint the participants with the processes and problems relating to irrigation schemes, water management, rehabilitation, etc. | Centre for Social Studies, South Gujarat University, Surat in collaboration with Deptt. of Economics, M.S. University of Baroda | The Course Director, Centre for Social Studies, University Campus, Surat |
| May 19-24, 1986 | Refresher course for practitioners in psychiatric social work | To acquaint the faculty members with advances in psychiatric social work | National Institute of Mental Health & Neuro-Sciences, Bangalore | The Director, NIMHANS, P.B. No. 2900, Bangalore |
| May 19-June 1, 1986 | Summer School on Crystal Growth and Characterisation of Advanced Materials for Solid State Applications | An orientation course in (i) Experimental Crystal Growth; (ii) Theories of Crystal Growth; (iii) Nucleation; and (iv) Characterisation | Crystal Growth Centre, Anna University, Madras | Dr. P. Ramasamy, Crystal Growth Centre, Anna University, Madras |
| May 26-June 21, 1986 | Summer School in Analysis and Probability | Topics covered are : Probability theory and Stochastic processes; Fourier analysis on R^n ; and Functional analysis. | Indian Statistical Institute, Calcutta | In-charge, Summer School 1986, Stat-Math Divn., Indian Statistical Institute, Calcutta |
| July 7-18, 1986 | Short-term training programme on Abstracting and Indexing | Application of abstracting and indexing methods, use of vocabularies in indexing, construction of indexing language (thesaurus) for information system | National Institute of Small Industry Extension Training, Hyderabad | Mrs. K. Subhashini, Course Director, NISIET, Yousufguda, Hyderabad |

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection, building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertations as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.30 a.m. to 5.30 p.m. Monday through Friday.

A list of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Sociology

1. Anilkumar, K. *A study of the dependence of age-structure on vital rates*. U Ker. Trivandrum. Dr. R. Ramkumar.
2. Sulaja, S. *A comparative study of the demographic determinants of Union Territories of India*. U Ker. Trivandrum. Dr. R. Ramkumar.

Political Science

1. Akhilesh Prasad. *The politics of rural development in Uttar Pradesh*. BHU, Varanasi. Dr. S. Srivastava.
2. Ketkar, Prabhakar Vishnu. *Public participation in planning: A study of Ratnagiri District*. Shivaji U, Kolhapur. Dr. K.K. Kavlekar.
3. Nanda Kumar, A.K. *Personnel administration of an Urban local set-up: A study*. Shivaji U, Kolhapur. Dr. B.A. Katikar.

Economics

1. Mathur, Sarita. *Ancient Indian economic thought*. BHU, Varanasi. Mr. R. Subramanyam.
2. Rajput, Amar Singh. *Economics of improved farming technology, with special reference to watershed development programmes in Madhya Pradesh*. Devi Ahilya, Indore. Dr. V.D. Nagar.
3. Ravikumar, G. *Impact of socio-economic factors in the choice of transportation modes in Kerala*. U Ker. Trivandrum. Dr. G. Karunakaran Pillai.
4. Sanodia, Manak Chand. *Farm management in Jabalpur Division of U.P.: An economic study of Govt. Farm*. HS Gour, Sagar. Dr. M.L. Tripathi.
5. Sheikh Raza Hossein. *International trade and economic growth, with special reference to Iranian economy*. Shivaji U, Kolhapur. Dr. T.G. Naik.
6. Sreekumaran Nair, N. *Determinants in industrial productivity in Kerala: A case study*. U Ker. Trivandrum. Dr. K. Ramchandran Nair.

Home Science

1. Pandey, Shankuntla. *Infant nutrition*. BHU, Varanasi. Prof. (Mrs.) A. Shukla.
2. Tiwari, Namrata. *Communication in rural area*. BHU, Varanasi. Dr. J. Tondon and Dr. (Mrs.) N. Sant.

HUMANITIES

Language & Literature

English

1. Ghosh, Sujata. *Iris Murdoch: A study in development*. BHU, Varanasi. Dr. M.K. Choudhury.
2. Hema, M.S. *Rhetorical devices in the speeches and writings of Swami Vivekananda*. U Ker. Trivandrum. Dr. Elias Valentine.
3. Nigam, Mamta. *The Brontes: A study in feminist perspective*. BHU, Varanasi. Dr. J.B. Misra.
4. Pandey, Anil Kumar. *James Thomson and the neo-classical poetic tradition*. BHU, Varanasi. Dr. R.K. Shukla.
5. Paul, M.J. *The novels of Thackeray and Dickens: A study in the development of the Hero*. BHU, Varanasi. Dr. S.K. Sinha.
6. Singh, Lallan Prasad. *Conflict of cultures in the novels of V.S. Naipaul*. BHU, Varanasi. Dr. M.K. Choudhury.
7. Srivastava, Manoj Kumar. *Eugene O'Neill's plays: A study in oriental strain*. BHU, Varanasi. Dr. N. Siddiqui.
8. Venu, R.L. *The influence of english elegies on Malayalam Elegies, with special reference to 'Adonasis' and 'Prarodanam'*. U Ker. Trivandrum. Dr. K. Sreenivasan.

Hindi

1. Bhatt, Prakash Chandra. *Hindi gadya mein vyang ka swarup, vikas evam vishleshan*. D.Litt. Devi Ahilya, Indore.
2. Dhamdhare, Smita. *Hindi gadya sahitya ko Madhyapradesh ke den: Ek anusheelan, from 1947 to 1980*. Devi Ahilya, Indore. Dr. (K.M.) C.K. Rahine.
3. Harsh Kumari. *Sathottari Hindi natakon mein parivarik vighatan*. MDU, Rohtak. Dr. H.R. Nirman.

4. Rajender Kumar. *Hindi alochana swarup aur padhatiyan*, 1950-1980. MDU, Rohtak. Dr. Pushpa Bansal.

5. Sheelawanti. *Swatantrayottar Hindi kavya mein rashtriya cheina*. MDU, Rohtak. Dr. B.N. Singhal.

6. Sushila Kumari. *Sathottri Hindi kahani lekshikaon dwara chitrit naree samasyayen*. MDU, Rohtak. Dr. B.N. Singhal.

Marathi

1. Joshi, Geeta Narendra. *Swatantrayottar kalateel Marathi natakatoon pratat ham lele isiri jeevan*. Shivaji U, Kolhapur. Dr. Nirmalkumar Phadkule.

2. Nikam, N.D. *Marathi rajkiya kadambhari*. Shivaji U, Kolhapur. Dr. S.R. Chavan.

Telugu

1. Prasad, S.L.V.S.R. *Telugu literature and the art of dance*.

BHU, Varanasi Dr.(Mrs.) S. Ratnavalli.

History

1. Jaiwal, Virendra Kumar. *Bharatiya punarjagan main Swami Vivekanand ka yogdan*. Devi Ahilya, Indore. Dr.(Mrs.) Kalpana Ganguli.

2. Mangaonkar, Shiyaram Bhausaheb. *Role of Gandhi and Ambedkar in eradicating untouchability in India*. Shivaji U, Kolhapur. Dr. M.D. Nalawade.

3. Mathew, Ruby. *Social History of Cochin State from 1900-1947*. U ker, Trivandrum. Shri P.G. Edwin.

4. Vate, Shankarlal. *Malwa mein Maratha shakti ka udbhav aur vikas from 1729 to 1761*. Devi Ahilya, Indore. Dr. (Mrs.) Kalpana Ganguli.

THESES OF THE MONTH

A list of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Psychology

1. Mathur, Navin. *Testing advertising copy : Psychological scoring of press advertisements of selected brands of tooth-pastes*. U Raj, Jaipur.

2. Sharma, Satendra Kumar. *The effects of sleep on emotional behaviour*. Meerut U.

3. Thomas, Babu. *A study of trade-union affiliation in relation to motivational and personal needs*. MSU, Baroda.

4. Tiwari, Mithilesh Kumar. *A study of some personality and motivational dynamics of unemployed, underemployed and employed-educated youths*. Mag U, Bodh Gaya.

Sociology

1. Burra, Neera S. *The relationship between three scheduled caste communities in rural Maharashtra with special reference to Dr. Ambedkar's movement*. U Delhi.

2. Kothari, Sudha K. *The role of youth in rural development : A sociological study*. U Poona.

3. Mhaskar, Anjali Anil. *Self-perception of secondary school teachers in Nasik City : A sociological study of teacher's role*. U Poona.

Social Anthropology

1. Biswas, Chinmoy Kanti. *Study of a Kabui Naga Packet in Silchar Town : A study of the process of social interaction*. Gauhati U.

2. Sarkar, Amitabha. *Impact of industrialization among the Dhodias of Gujarat*. U Calcutta.

Political Science

1. Arya, Rajendra Prasad. *Lala Lajpatrai ka rajnaitik darshan*. Vikram U, Ujjain.

2. Barriya, Garima. *A study of the control of magistracy over police in India*. APSU, Rewa.

3. Bezbaruah, Ranju. *Indo-U.S. relations, 1962-73*. Gauhati U.

4. Chopra, Sharda. *The Municipal Commissioner with special reference to the Commissioner of the Municipal Corporation of Delhi from 1957-1981*. U Delhi.

5. Das, Rabindranath. *Organisation and management of Paradip Port*. Utkal U, Bhubaneswar.

6. Dhall, Balwinder Singh. *Dr. Radhakrishnan and Unesco*. Pb U, Chandigarh.

7. Dhamala, Ranju Rani. *A study of local self-government and democratic decentralisation in Sikkim*. NBU, Rajarammohanpur.

8. Tyagi, Pratima. *Representation in local, social and political institutions*. Meerut U.

9. Kshatriya, Onkar Singh. *Afghan sankat aur Bharatiya drishtrikon*. APSU, Rewa.

10. Verma, L.N. *Bharatiya Sansad ke samaksh samwaidhanik samasyaen*. Vikram U, Ujjain.

Economics

1. Annapurna, Malladi. *Economics of nutrition: Inter-state variation in consumption levels in the selected States of India*. Andhra U, Waltair.

2. Dasgupta, Subhendu. *Linkages between organised industry in India and foreign private capital and technology*. U Calcutta.

3. Deogirikar, Ashok Balwantrao. *Role of Marathwada Regional Rural Bank in a backward region*. Marath U, Aurangabad.

4. Gulati, Subhash Chander. *An econometric analysis of fertility in India*. U Delhi.

5. Rai, Gorakh Nath. *Role of industrial development bank in*

industrial development of Bihar. Mag, U, Bodh Gaya.

6. Sahasrabundhe, Suhas Shiram. *An economic assessment of the working and impact of lead bank scheme with special reference to Kolhapur District*. Shivaji U, Kolhapur.

7. Sinha, V.C. *Migration, urbanization and economic development in India*. D. Litt. APSU, Rewa.

8. Suaramaiah, P. *Cropping pattern and farming techniques in a drought prone area*. Anantapur District. SKU, Anantapur.

9. Sugunamma, G. *Tax structure in Andhra Pradesh*. SKU, Anantapur.

Law

1. Dangay, Yash Pal Chandra. *Legislation through ordinances*. Meerut U.

Public Administration

1. Gupta, Sajal Datta. *Co-ordination of rural development programmes at the Thana level in Bangladesh with special reference to the role of circle officer*. Pb U, Chandigarh.

2. Ved Prakash. *Role of local authorities in urban development in a large town with special reference to Ludhiana*. Pb U, Chandigarh.

Education

1. Ingole, Ramchandra Nivrutti. *A critical study of the present position of teaching history in secondary schools of Solapur District*. Shivaji U, Kolhapur.

2. Jain, Ambika. *Development of primary education under local bodies in Maharashtra, 1882-1984*. U Poona.

3. Jayalakshmi, T.K.S. *Systematising instructional modules in educational psychology at B.Ed level*. MSU, Baroda.

4. Pinto, Silvester. *Education and industrial productivity : A case study of workers and supervisors employed in the engineering industry in Pune Metropolitan Region*. U Poona.

5. Satyanarayana Rao, Pathi Prabhakar. *The impact of adult education on individual modernity : A study of adult males in rural and tribal development blocks*. Andhra U, Waltair.

6. Surinder Kaur. *Abstract concepts in different areas of mathematics : A factorial study*. U Jammu.

7. Thongpleu, Chomcheun. *A study of non-formal vocational education programme in the educational region 5 of Thailand*. MSU, Baroda.

Commerce

1. Bhatnagar, Satish Chandra. *A study of Indo-Soviet economic collaboration and joint ventures in manufacturing industries*. Meerut U.

2. Dwivedi, Shyam Mohan. *Mahakaushal ke lughustriya udyogon ka vishleshtmatmak adhyayan*. RDV, Jabalpur.

3. Gupta, Kedar Nath. *Grameen vitt: Madhya Pradesh ke Rewa Jile ka adhyayan*. APSU, Rewa.

4. Madhusudhana Rao, Markonda Patnaikuni. *Trade union leadership in India: A study in behavioural dimensions of union leaders of grass root level with special reference to Visakhapatnam City*. Andhra U, Waltair.

5. Patankar, Shrikant Trimbak. *A study of rural marketing with reference to mechanized farm equipment in Western Maharashtra*. Shivaji U, Kolhapur.

6. Tapkir, Mukund M. *Management problems of consumers' cooperative societies in Pune City*. U Poona.

7. Verma, Bajrang Lal. *Analysis of financial statements of state electricity boards on India*. U Raj, Jaipur.

8. Wali, Mohammad R. *A study of trade unionism in shops and commercial establishments in Pune City*. U Poona.



INDIAN INSTITUTE OF TECHNOLOGY MADRAS.

Admissions to Postgraduate Programmes for the academic Session Commencing July 1986

MASTER OF SCIENCE (M.Sc.)

CHEMISTRY * MATHEMATICS * PHYSICS
DOCTOR OF PHILOSOPHY (Ph.D.) AND MASTER
OF SCIENCE BY RESEARCH (M.S.) IN THE
FOLLOWING DEPARTMENTS/CENTRES :

Aeronautical Engineering* Applied Mechanics :
Industrial Tribology, Maintenance Engineering and
Management * Chemical Engineering * Civil Engineer-
ing * Computer Science & Engineering* Electrical
Engineering* Humanities and Social Sciences : Industrial
Engineering & Industrial Management: Behavioural
Sciences* Mechanical Engineering* Metallurgical
Engineering * Ocean Engineering * Centre for Systems
& Devices * Fibre Reinforced Plastic Research Centre.

DOCTOR OF PHILOSOPHY (Ph.D.) ONLY

CHEMISTRY * MATHEMATICS * PHYSICS

Humanities and Social Sciences : Economics,
German, History & Psychology.

MASTER OF TECHNOLOGY (M.TECH.) (For Sponsored candidates only)

Aeronautical Engineering * Applied Mechanics :
Engineering Mechanics; Industrial Tribology ; Main-
tenance Engineering and Management * Chemical
Engineering * Civil Engineering * Computer Science
and Engineering* Electrical Engineering* Humanities
and Social Sciences : Industrial Management * Mecha-
nical Engineering * Metallurgical Engineering : Indus-
trial Metallurgy * Ocean Engineering* Physics : Solid
State Technology.

M.Sc. : A first class or 60% marks in the aggregate or equivalent in the Bachelor's degree in Science (Chemistry, Mathematics, Physics). For the Department of Chemistry, only candidates with B.Sc. Chemistry main and Mathematics and Physics ancillaries or as additional mains are eligible. No other ancillaries are eligible. For the Department of Mathematics only those candidates with Mathematics as major are eligible to apply. For the Department of Physics candidates with Bachelor's degree in Physics with Mathematics as one of the ancillary subjects are eligible to apply.

Those appearing for their qualifying examinations are also eligible to apply provided they are completing all their qualifying examinations including practical/viva not later than 25th July 1986. Candidates will have to come to Indian Institute of Technology, Madras at their own cost for a departmental written test followed by an interview.

Ph.D. : Master's degree in Engineering/Technology with first class or minimum 60% marks or equivalent for the Engineering discipline. Master's degree in Science/Humanities and Social Sciences with first class or minimum 60% marks or equivalent and valid score of GATE or TRIM/UGC/CSIR Fellowship Examination for Science, Humanities and Social Sciences areas.

M.S. : Bachelor's degree in Engineering/Technology or equivalent or Master's degree in appropriate Science areas with a first class or minimum 60% marks or equivalent and should have qualified in GATE/TRIM/UGC/CSIR Fellowship Examination in the relevant areas.

External Registration (M.S./Ph.D.)

Facilities exist for persons employed in Scientific Laboratories, Industries with R&D facilities recognised by DST and Defence Establishments to work for M.S. and Ph.D. programmes. They must possess the minimum academic qualifications prescribed for full-time candidates and also minimum 2 years continuous service in these organisations in research/development/design areas. They are not eligible for Institute scholarship.

M.Tech. (sponsored candidates only)

A first class or 60% marks in aggregate in the Bachelor's degree in Engineering. Those possessing AMIE qualifications from the Institution of Engineers (India) or Aeronautical Society of India or Indian Institute

of Metals, or Indian Institute of Chemical Engineers will be considered for admission to their parent discipline, provided they have qualified in GATE. All candidates applying for this programme should have a minimum of 2 years (3 years for Industrial Management) professional experience.

General

1. An Information Brochure containing various areas of study/research and eligibility of candidates with different backgrounds will be made available with the application form.
2. Scholars will be paid scholarship as per approved norms.
3. Full-time candidates called for interview for Ph.D. programmes will be paid second class to and fro railway fare by the shortest route.
4. Certain percentage of seats are reserved for SC ST candidates. They are also eligible for relaxation up to 5% marks in the qualifying examination.
5. Application forms along with detailed information may be obtained by candidates from the Deputy Registrar (Academic), Indian Institute of Technology, Madras-600 036 by sending a requisition containing the name and address of the candidate and mentioning clearly the programme for which they are applying and enclosing :
 - (a) a Bank Draft in favour of IIT, Madras payable at Madras for Rs. 25/- for M.Sc. programme, a Bank Draft for Rs. 12/- each for M.S. Ph.D. and M.Tech. (Sponsored) programmes ; and

(b) a self-addressed unstamped envelope of 22cm x 16cm.

The Bank Draft should not have been dated earlier than 31-3-1986. The cover addressed to the Deputy Registrar (Academic) should be superscribed as "Admission 1986-87—M.Sc. Chemistry/Mathematics/Physics" as the case may be for M.Sc. courses. "Admission 1986-87—M.S./Ph.D." for Research Programmes and "Admission 1986-87—M.Tech. (Sponsored)" for M.Tech. (Sponsored) programmes. If a candidate proposes to apply for more than one programme, he should use additional application form for which a fee of Rs. 25/- or Rs. 12/- as the case may be for each application form should be included in the Bank Draft. Those who apply for External Registration should indicate the same clearly in their requisition.

Last Date for receipt of requisition

for application by post —April 25, 1986 (Friday)

Last date for receipt of completed applications

—May 16, 1986 (Friday)

Probable dates M.Sc.—17th to 20th June, 1986

for interview/test

(Tuesday through Friday)

M.S./Ph.D. &

M.Tech. (sponsored) 23rd to 25 June, 1986 (Monday through Wednesday)

Advt. No.F.Acd./ARU/R3/01/86-87

S.N.D.T. WOMEN'S UNIVERSITY

1, Nathibai Thackersey Road, Bombay-400 020

Applications are invited in prescribed forms available at the University Office, on payment of Rs. 5/- in cash or by Indian Postal Order, for the following posts to be filled in at the P.V.D.T. College of Education for Women, Bombay, so as to reach the undersigned latest by APRIL 15, 1986.

| | No. of Posts | Medium of Teaching |
|--|--------------|--------------------|
| A. P.V.D.T. COLLEGE OF EDUCATION | | |
| 1. Lecturer in Education | TWO | MARATHI |
| 2. College Librarian | ONE | — |
| B. CENTRE OF EDUCATION—POST-GRADUATE EDUCATION & RESEARCH AT THE P.V.D.T. COLLEGE | | |
| 3. Reader in Education | ONE | GUJ/MAR. |
| 4. Lecturer in Education | ONE | ENG/GUJ. |
| C. DEPARTMENT OF SPECIAL EDUCATION | | |
| 5. Professor | ONE | ENGLISH |
| 6. Reader | ONE | ENGLISH |
| 7. Research Associate | ONE | ENGLISH |
| 8. Supervisor (in Lecturer's Scale) | ONE | ENGLISH |

Minimum qualifications, salary scales, etc. for the post of teachers as per approved U.G.C. scales and qualifications. Applications of Scheduled Caste/Tribes/Other Nomadic Tribes, etc. will be considered as per Government directives. Details regarding qualifications, experience, etc. will be available with application forms, which should be collected.

Dr. (Smt.) Usha Thakkar
REGISTRAR

**SRI SATHYA SAI INSTITUTE
OF HIGHER LEARNING**
(Deemed University)
**VIDYA GIRI, PRASANTHINILAYAM-
515 134 (A.P.)**

Applications are invited for the following positions effective from 1st June, 1986.

Dean of Faculty of Business Administration

Dean of the Faculty of Education

Professor of Commerce

(Specialisation in Financial Management, or Banking or Management Accountancy and Costing or Quantitative Techniques).

2. Applicants for these posts should have, in addition to Ph.D. from a recognised University/Business School or related programme, also a record of teaching and research, administrative ability and a commitment in building a substantial new programme.

3. Applications for the following positions are also invited :

Prasanthinilayam Campus/Whitefield Campus : (Both for men)

Readers : Chemistry-1; Physics-1; History & Indian Culture-1;

Philosophy-1; Commerce-1;

Lecturers : Chemistry-1; Mathematics-1; English Language & Literature-2.

Anantapur Campus : (for women)

Readers : Philosophy-1; Home Science-1;

Lecturers : Mathematics-1; Home Science-1; Sanskrit Language-1.

4. Candidates desirous of applying for the above posts may write to the Registrar within 20 days of the date of advertisement indicating their qualifications, experience and area of specialisation/interest. The prescribed application form will be sent on the basis of information furnished.

5. The selected candidates who join will be governed by the Contributory Provident Fund-cum-Gratuity Scheme of the Institute. Minimum qualifications and scales of pay, as prescribed by the University Grants Commission, are applicable for all the posts.

**K. Chakravarthi
REGISTRAR**

**TATA INSTITUTE OF SOCIAL
SCIENCES, DEONAR,
POST BOX NO. 8313, BOMBAY 400 088**

Applications are invited for the following posts. The prescribed application form along with the details of qualification, experience, etc., should be obtained from the above address either in person or by post along with a stamped (Rs. 1.50) self-addressed envelope superscribed "Request for application form for teaching posts".

I. **Reader in Social Sciences** (one post) in the scale of pay Rs. 1200-50-1300-60-1900+D.A. and other allowances. The total emolument in the minimum of the scale is Rs. 2,967.85 per month, and in the maximum Rs. 4,038.45 per month.

II. **Co-ordinator, NSS Unit** (one post) in the scale of pay Rs. 1100-50-1600+

D.A. and other allowances. The total emolument in the minimum of the scale is Rs. 2,857.85 per month and in the maximum Rs. 3,465.35 per month.

III. **Lecturers** (4 posts) One in the Department of Urban and Rural Community Development, One in the Department of Personnel Management and Industrial Relations, One in the Department of Family and Child Welfare, and One in the Unit for Audio-Visual Records; in the scale of pay Rs. 700-40-1100-50-1500+D.A. and other allowances. The total emolument in the minimum of the scale is Rs. 2,022.50 per month, and in the maximum Rs. 3,465.35 per month.

The last date of request for application form : **15th April, 1986** Application made in plain paper will be rejected.

**Krishnamoorthy
REGISTRAR**

Wanted Director for Research Centre on Women's Studies, of SNTD WOMEN'S UNIVERSITY, 1, Nathibai Thackersey Road, Bombay-400 020, in the Professor's grade of Rs. 1500-60-1800-100-2000-125/2-2500 plus admissible allowances.

Qualifications : Eminent research scholar with Doctorate degree in Social Sciences or Education or Management. About ten years' experience of teaching and/or research in any of the subject mentioned above, and preferably in Women's Studies, and about 5 years' Administrative Experience. Accommodation will be considered.

Apply on prescribed forms available at the University on payment of Rs. 50/- (in Cash/by M.O./Indian Postal Order) so as to reach the University on or before **APRIL 21, 1986**.

**OFFICE OF THE REGISTRAR
DIBRUGARH UNIVERSITY
DIBRUGARH**

Advertisement No. 1/86

Applications are invited for the following posts :

1. Lecturer in Political Science-One post
2. Lecturer in Applied Geology-Two posts

Posts at Sl. 2 are against leave vacancies but likely to continue.

Scale of pay :

Lecturer : Rs. 700-40-1100-50-1600/-

All posts carry usual allowances as admissible under the rules in force from time to time and the incumbents will be eligible for Contributory Provident Fund and Gratuity on confirmation as per rules of the University.

Essential Qualifications

A. For Lecturer :

(a) A Doctorate Degree or research work of an equally high standard; and

(b) Consistently good academic record with 1st or high 2nd class (B in the seven point scale) Master's Degree in a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degree in (a) and (b) above may be in relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of qualifications prescribed in (b) above for the post of Lecturer.

Provided further that if a candidate having a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research work of equivalent high standard within eight years of appointment as Lecturer failing which he will not be able to earn increments until he fulfils those requirements.

Specialisation required :

1. **Lecturer in Political Science**

Political Theory/Political Sociology/International Politics.

2. **Lecturer in Applied Geology**

Hydrogeology/Petroleum Geology/Ore Mineral Studies/Economic Geology/Mining Geology.

Eight copies of applications for the posts of Reader and Lecturer in plain papers giving full bio-data including (1) Name in full (in block letters), (2) Father's name, (3) Date of birth, (4) (a) Permanent address (b) Present address, (5) Present occupation, if any, (6) Present salary drawn, if any, and the salary expected, (7) Detailed academic career from Matriculation upwards showing Division/Class, aggregate percentage of marks, School/College/University from which appeared (attested copies of Marksheets, Certificates should be enclosed), (8) Details of appointments held with designation, duration, nature of works and name of employers, (9) Research contributions with copies reprint or Research experiences supported by documentary evidence, (10) Name and address of two referees not related to the candidate together with an application fees of Rs. 5/- (Rupees five) by Crossed Indian Postal Order drawn in favour of the Registrar, Dibrugarh University should reach the undersigned on or before **12th April 1986**.

The number of this advertisement and name of the post applied for must be referred to in the application. Persons already in employment should apply through proper channel or with a 'No objection Certificate' from the present employer.

All reprints of the research papers published must be attached.

Applications not in conformity with the above requirements will not be entertained.

Candidates will be required to appear at an interview if and when called for, and will be given actual Railways fare according to the rules of the University.

**Dr. D.H. Goswami
REGISTRAR**

**INDIAN INSTITUTE OF
TECHNOLOGY
KHARAGPUR**

Advertisement No. R/1/86

Applications are invited for the under-mentioned posts at the Indian Institute of Technology, Kharagpur, West Bengal :

1. PROFESSORS

Scale of Pay : Rs. 1500-60-1800-100-2000-125/2-2500/- plus D.A. etc. as admissible.

Age : Preferably below 50 years.

Qualifications & Experience

Essential

An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at Doctoral level.

OR

An outstanding Engineer Technologist with established reputation who has made significant contribution to knowledge.

Fields of specialisations

A. Chemistry

Area 1 : High Pressure Technology and Catalysis Chemical Spectroscopy/Thermodynamics/Physical or organic Chemistry.

Area 2 : Co-ordination Chemistry Structural Inorganic Chemistry.

B. Cryogenic Engineering

Area 1 : Gas purification and cryogenic separation processes.

Area 2 : Heat and mass transfer/design of cryogenic equipments.

Area 3 : Material properties and devices at cryogenic temperatures.

C. Electronics & Electrical Communication Engineering

Computer Science & Engineering/Communication Systems/Control Systems/Solid State Devices, Microwaves.

D. Industrial Engineering & Management
Industrial Engineering & Operations Research/Industrial Management/Maintenance Engineering & Management/Systems Engineering & Management.

E. Mechanical Engineering

Computer-aided design, Computer-aided Manufacture, Robotics, Artificial Intelligence, Control Systems, Numerical and Experimental Stress Analysis, Kinematics, Tribology, Composites, Machine Tools, Welding, Metal Casting, Non-conventional machining and manufacture, Quality Control, Refrigeration & Air Conditioning, Combustion, Two-phase flow and Heat Transfer, Non-conventional Energy.

F. Metallurgical Engineering

Furnance Technology or Corrosion.

G. Mining Engineering

Specialisation in one or more of the following :

Metal Mining/Coal Mining/Mine Systems/Mine Planning.

H. Reliability Engineering Centre

Reliability Engineering with background of Electrical/Electronics/Computer Engineering and should have carried out research in the area of reliability as applied to the above specialisation. Preference would be given to applicant with Industrial practical experience in area of reliability testing demonstration and evaluation of Electronics/Electrical/Computer systems.

II. ASSISTANT PROFESSORS

Scale of Pay : Rs. 1200-50-1300-60-1900/- plus D.A. etc. as admissible.

Age : Preferably between 30 and 45 years.

Qualifications & Experience

Essential

Good academic record with a Doctor's degree in the relevant field. About 5 years' experience of teaching and/or research and development.

Candidates not possessing Ph.D. may be considered if they have to their credit equivalent research published work or design/development work of a high order either in an institution or in an industry.

OR

In the case of persons to be recruited from industry or professional fields, candidates should possess good academic record with recognised professional work of about 7 years which should include innovation and/or research and development

Fields of specialisations

A. Aeronautical Engineering

Aerodynamics Propulsion/Aircraft Structures.

B. Aquacultural Engineering
(Agricultural Engg. Dept.)

Degree in Civil/Agricultural Engineering with experience in the area of design and construction of aquacultural farms and other aquacultural facilities.

C. Civil Engineering

Structural Engg. Highway & Traffic Engg./Soil Mechanics & Foundation Engg.

Desirable in Structural Engineering

Proven aptitude in the following areas :

- Bridge Engineering
- Prestressed Concrete
- Probabilistic design
- High Rise Buildings
- Non-linear Mechanics

Desirable in Highway and Traffic Engineering

Experience of design, construction and maintenance of roads in plain and hilly areas.

Desirable in Soil Mechanics & Foundation Engg.

Ph.D./Field experience in the construction of various types of Foundation Structures.

N.B. : The selected candidates for the post will be required to teach subjects at undergraduate level other than his own specialization.

D. Chemistry

Organic Chemistry (For one post) :

General Organic Chemistry/Bio Organic Chemistry (b) **Physical Chemistry** (For other two posts):

Theoretical Chemistry/Thermodynamics/Electro Chemistry/Photo Chemistry/Molecular Spectroscopy/Solid State Chemistry/Catalysis/High Pressure Chemistry.

E. Computer Science & Engineering

Computer hardware/Systems programming/Microprocessor/Theoretical Computer Science.

F. Cryogenic Engineering

Area 1 : Gas purification and cryogenic separation processes.

Area 2 : Heat and mass transfer/design of cryogenic equipment.

Area 3 : Material properties and devices at cryogenic temperatures.

G. Electrical Engineering

Machines & Power Electronics/Power Systems/Control/Instrumentation.

Desirable

Teaching/research experience in the application of Microprocessors and Computers.

G. Electronics & Electrical Communication Engineering

Computer Science & Engineering/Communication Systems/Control Systems, Microwaves.

I. Microelectronics Centre

(Electronics & Elec. Comm. Engg. Deptt.)

Microelectronics Engineering/Computer Aided Design of LSI.

(Post temporary but likely to continue)

J. Geology & Geophysics

Paleontology / Micro - Paleontology, Geophysics.

K. Humanities & Social Sciences

Economics/English (with adequate knowledge of Language Laboratory Methods/Sociology (Urban).

L. Industrial Engineering & Management

Industrial Engineering & Operations Research, Industrial Management/Maintenance Engineering & Management, Systems Engineering & Management.

M. Mathematics

Functional Analysis or Statistics.

N. Physics & Meteorology

1. Theoretical Physics

2. Nuclear Physics (Experimental, Theoretical)

3. Solid State Physics (Experimental/Theoretical)

4. X-rays (Experimental/Theoretical)

O. Curriculum Development Cell

(Quality Improvement Programme)

Electronics Engineering Telecommunication Engineering or equivalent.

(Post temporary and likely to continue)

P. Reliability Engineering

Reliability Engineering with basic degree of any branch of engineering and should have carried out research in the area of reliability engineering as applied to engineering systems.

III. Lecturer (Engineering/Technology)

Scale of Pay : Rs. 700-40-1100-50-1600/- plus D.A. etc. as admissible.

Age: Preferably between 25 and 35 years.

Qualifications & Experience**Essential**

(i) Master's degree in appropriate field in Engineering/Technology.

(ii) Consistently good academic record with a Bachelor's degree in Engineering/Technology. First class at Bachelor's degree and/or Master's degree level.

(iii) One year's relevant professional experience outside academic/research institutions.

Having regard to the requirements of emerging fields of Engineering and of developing interdisciplinary programmes, the requirements of Engineering/Technology degrees may be waived in the cases of otherwise well qualified candidates.

Fields of Specializations**A. Aeronautical Engineering :**

Aerodynamics/Propulsion/Aircraft structures.

B. Civil Engineering

Desirable in Environmental Engg. & Sanitation

A doctorate degree in Environmental Engg. or related field.

Desirable in Surveying Remote Sensing

Field experience in use of modern surveying equipments.

Desirable in Structural Engineering

Proven aptitude in the following areas :

- Bridge Engineering
- Prestressed Concrete
- Probabilistic Design
- High Rise Buildings
- Non-linear Mechanics.

N.B. The selected candidates for all the posts will be required to teach subjects at under-graduate level other than his own specialisation.

C. Electronics & Electrical Communication Engineering

Computer Science & Engineering/Communication Systems/Control Systems/Microwaves.

D. Electrical Engineering

Power Electronics and Electrical Drives."

E. Industrial Engineering & Management

Industrial Engineering & Operations Research/Industrial Management/Maintenance Engineering & Management/Systems Engineering & Management.

F. Mechanical Engineering

Computer-aided design, Computer-aided manufacture, Robotics, Artificial Intelligence, Control Systems, Numerical and Experimental Stress Analysis, Kinematics, Tribology, Composites, Machines

Tools, Welding, Metal Casting, Non-connectional machining and manufacture, Quality Control, Refrigeration and Air-conditioning, Combustion, Two-phase flow and Heat transfer, Non-conventional Energy.

G. Metallurgical Engineering

Transport phenomenon or Extraction process modelling/Fracture mechanics or Mechanical process modelling/Physical metallurgy or Electronic materials.

H. Mining Engineering

Specialisation in one or more of the following :

Mining Machinery/Mine Environment/Mine Systems and Computer application in mines/Mine surveying.

I. Naval Architecture

Ship Design, Ship Hydrodynamics, Ship motions, Ship Production, Ship Structures, Ocean Engineering Structures and Vehicles, Shipbuilding Management.

IV. LECTURER (SCIENCE)

Scale of pay : Rs. 700-40-1100-50-1600/- plus D.A. etc. as admissible.

Age : Preferably between 25 and 35 years.

Qualifications & Experience**Essential**

(i) A good academic record with a Master's degree in the appropriate branch.

(ii) Two years' professional experience of teaching and/or research and development.

Desirable : A doctorate degree.

Field of specialisations**A. Geology & Geophysics**

Paleontology/Micro-Paleontology/Geophysics.

V. Lecturer (Architecture & Regional Planning)

Scale of Pay : Rs. 700-40-1100-50-1600/- plus D.A. etc. as admissible.

Age : Preferably between 25 and 35 years.

Qualifications :

Bachelor's degree in Architecture plus two years of relevant professional experience.

OR

Master's degree in Architecture/Planning and one year's relevant professional experience.

Fields of specialisations

Urban Design/Landscape/Regional Planning/City Planning/Computer Applications in Architecture & Regional Planning.

Desirable : Urban Design/Computer Application in Architecture & Planning.

N.B. Some posts of Lecturer are reserved for Scheduled Caste/Scheduled Tribe candidates as per rules. If no suitable candidate is found from SC/ST categories, the posts will be treated as unreserved and selection will be made from general candidates.

VI. LIBRARIAN

Scale of pay : Rs. 1500-60-1800-100-2000-125 2-2500/- plus D.A. etc. as admissible.

Age: Preferably between 30 and 45 years.

Qualifications & Experience**Essential :**

(a) First or Second class M.Lib. Sc.

OR

M.A./M.Sc./M.Com. plus a First or Second class B Lib. Sc. or Diploma in Library Science.

(b) At least ten years experience as Librarian or in a responsible professional capacity in a university Library.

(c) Ph.D. degree or equivalent research work in the field relevant to the profession.

(d) Training in Computerization/Information Technology/other specialised areas.

Desirable

(1) Experience in preparation of Scientific and Technical Bibliographies.

(2) Experience in publicity work.

The qualifications and experience are relaxable at the discretion of the competent authority in the case of candidates belonging to the Scheduled Castes or Scheduled Tribes, if at any stage of selection the competent authority is of the opinion that sufficient number of candidates from these communities possessing the requisite experience is not likely to be available to fill up the vacancies reserved for them.

The qualifications and experiences prescribed above are the minimum and mere possession of the same does not entitle any candidate to be called for interview. Where the number of applications received in response to the advertisement is large, it will not be convenient nor possible for the Institute to interview all those candidates; in that case the Institute may restrict the number of candidates for interview etc. to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.

Application forms may be had from the Registrar on request along with an unstamped self-addressed envelope of size 23 cm x 10 cm. Applications accompanied with an application fee (non-refundable) of Rs. 7.50 (candidates belonging to Scheduled Castes/Scheduled Tribes are exempted from paying application fee) payable by means of crossed Indian Postal Order in favour of Indian Institute of Technology, Kharagpur at Kharagpur-721302. Post Office should reach the Registrar, Indian Institute of Technology, Kharagpur by the 22nd April, 1986.

Applicants who are in the employment of Government/Semi-Government Organisation/Educational Institute or of any Government undertaking must send their applications through proper channel.

S.R. Acharyya
REGISTRAR